



**BYRON
SHIRE
COUNCIL**

Policy

Contaminated Land Management

2024

Information about this document

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Further Document Information and Relationships

Related Legislation	<i>Contaminated Land Management Act 1997</i>	Sets out the role of the EPA and the rights and responsibilities of parties it might direct to manage land where contamination is significant enough to warrant regulation
	<i>Contaminated Land Management Regulation 2022</i>	Sets out the recovery of administrative costs for the EPA relating to regulated sites and the auditor system. It also sets out timeframes for administrative matters under the <i>Contaminated Land Management Act 1997</i>
	Statutory and non-statutory guidelines under the <i>Contaminated Land Management Act 1997</i>	The EPA can make or approve guidelines under section 105 of the <i>Contaminated Land Management Act 1997</i> for the purposes connected with the objects of the Act. The current guidelines are available on the NSW EPA website
	<i>Environmental Planning</i>	Provides the overarching structure for regulation

	& Assessment Act 1979	of planning and development in NSW together with the <i>Environmental Planning and Assessment Regulation 2000</i>
	<i>Environmental Planning and Assessment Regulation 2021</i>	Provide the overarching structure for the regulation of planning and development in NSW together with the <i>Environmental Planning and Assessment Act 1979</i>
Related Policies	State Environmental Planning Policy Resilience and Hazards	Ensures planning decisions take into account possible land contamination, and promotes remediation to reduce risk of harm
	SEPP 55 Remediation of Land	<p>This Policy was repealed by the State Environmental Planning Policy (Resilience and Hazards) 2021</p> <p>This state environmental planning policy (SEPP) is now in Chapter 4 of the State Environmental Planning Policy (Resilience and Hazards) 2021</p> <p>SEPP 55 may still be referenced throughout this document as it is referenced within s9A of the <i>Environmental Planning and Assessment Act 1979</i> No 203.</p>
Related Standards, Procedures, Statements, documents	NSW Managing Land Contamination Planning Guidelines – SEPP 55 Remediation of Land (1998)	The Planning Guidelines support SEPP55 and address the policy framework, identification and investigation of contamination, the decision-making process, management of contaminated sites and remediation, information management, and principles for proactively preventing future contamination
	National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)	Establishes a nationally consistent approach to the assessment of site contamination to ensure sound environmental management practices by the community which includes regulators, site assessors, site auditors, landowners, developers, and industry

Note: Any reference to Legislation will be updated in the Policy as required. See website <http://www.legislation.nsw.gov.au/> for current Acts, Regulations and Environmental Planning Instruments.

Key terms and Acronyms

Category 1 Remediation	Remediation works requiring Development Consent
Category 2 Remediation	Remediation works that do not require Development Consent (but must be notified to Council)
Contamination	The condition of land or water where any chemical substance or waste has been added as a direct or indirect result of human activity at above background level and represents, or potentially represents, an adverse health or environmental impact
CLM Act	<i>Contaminated Land Management Act 1997</i> (NSW)
Detailed Site Investigation (DSI)	An investigation with the objective to define the nature, extent and degree of contamination; assess potential risk posed by contaminants to health and the environment; and obtain sufficient information to develop a Remedial Action Plan (if needed)
Development Application	A Development Application is a formal request for consent to carry out development and is considered under Part IV of the <i>Environmental Planning & Assessment Act 1979</i>
Development Consent	Formal approval from Local Councils to proceed with a development. Development Consent is required prior to commencement of any works associated with development governed by Part IV of the <i>Environmental Planning & Assessment Act 1979</i>
Duty to Report	The duty to report significant contamination to the NSW EPA is a requirement under the <i>Contaminated Land Management Act 1997</i> , with updates provided in the <i>Contaminated Land Management Amendment Act 2008</i> . The triggers for reporting are presented in the “Guidelines on the Duty to Report Contamination under the <i>Contaminated Land Management Act 1997</i> ” (2015)
EPA	Environment Protection Authority
Initial Evaluation	An evaluation undertaken by Council to determine whether contamination is likely to be an issue, and to assess whether further information is required for it to conduct its planning functions in good faith. Also known as a preliminary site investigation

Land Contamination	Land contamination may be the result of past or current uses. The land may be contaminated by a current or historical land use activity directly on that site or through migration of contamination from adjacent sites. See also definition of “contamination”
LEP	Local Environmental Plan. An LEP guides planning decisions for Local Government Areas through zoning and development controls, which provide a framework for the way land can be used. LEPs are Planning Instruments from the <i>Environmental Planning & Assessment Act 1979</i>
LGA	Local Government Area
Ongoing Environmental Management Plan (OEMP)	A plan outlining monitoring and management requirements where contamination remains on site, and there is uncertainty as to its potential to migrate; and / or the effectiveness of the management measures implemented to contain the contamination following remediation and validation; and / or monitoring and ongoing management forms part of the remediation strategy
Planning Application	A Development Application or Planning Proposal made to Council in accordance with the <i>Environmental Planning and Assessment Act 1979</i> (NSW)
Planning Guidelines	NSW Managing Land Contamination Planning Guidelines – SEPP 55 Remediation of Land (1998)
Planning Proposal	A formal application submitted to Council that proposes to rezone land
POEO	<i>Protection of the Environment Operations Act 1997</i> (NSW)
Preliminary Site Investigation (PSI)	An investigation to identify any past or present potentially contaminating activities, to provide a preliminary assessment of any site contamination, and if required, to provide a basis for a more detailed investigation
Remedial Action Plan (RAP)	A plan that sets objectives, and documents the process, for remediating a contaminated site
s10.7 Certificate	Planning Certificate under Section 10.7 of the <i>Environmental Planning and Assessment Act 1979</i> (NSW)

Resilience and Hazards SEPP	State Environmental Planning Policy (Resilience and Hazards) 2021. Replaces the repealed Remediation of Land SEPP 55
Significantly Contaminated Land	A site is declared Significantly Contaminated Land by the EPA where contamination is considered significant enough to warrant regulation under the <i>Contaminated Land Management Act 1997</i> (with changes made through the <i>Contaminated Land Management Amendment Act 2008</i>) given the site's current or approved use
Site Audit	An independent review by a Contaminated Land Auditor, accredited by the NSW EPA, of any or all stages of the site investigation process, conducted in accordance with the requirements of the <i>Contaminated Land Management Act 1997</i>
Site Audit Report (SAR)	A report which summarises the report(s) audited and provides the Auditor's opinion and conclusions. A Site Audit Report must be accompanied by a Site Audit Statement
Site Audit Statement (SAS)	A statement which outlines the conclusions of a site audit. A Site Audit Statement must be accompanied by a Site Audit Report
Table 1 of the Planning Guidelines	List of Potentially Contaminating Activities included in Table 1 of the "NSW Managing Land Contamination Planning Guidelines" (1998)
Validation	The objective of the validation stage of the contaminated land process is to demonstrate whether or not the objectives stated in the Remedial Action Plan have been achieved

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Background

Contamination can cause harm to human health, the environment, and the community. It can restrict development or certain land uses, and has economic, legal, and planning implications for the community and for Council as a regulatory authority through the planning and development process. It is therefore important for Councils to appropriately manage contaminated land, this policy outlines Council's approach to do so. The policy supports Council, landowners, developers, consultants, and the community to understand and identify where potential risks are, avoid inappropriate land uses and costly delays or restrictions on a development site due to unexpected contamination.

A review of contaminated land matters was undertaken on a regional scale in 2005/2006 to assist in the development of a policy that would provide a consistent approach to planning decisions involving matters of contaminated land within the Northern Rivers (Ballina, Byron, Kyogle, Lismore, Richmond Valley and Tweed Councils). As part of the review process, a draft policy for the region was developed through a working party of the North Coast Public and Environmental Health Task Force and adopted by Byron Shire Council 13/11/2008.

That regional policy was reviewed and updated in 2023 through the Council Regional Capacity Building (CRCB) Program, which is funded by the New South Wales (NSW) Government through the NSW Environment Protection Authority (EPA's) Contaminated Land Management Program, partially in response to the State Environmental Planning Policy (SEPP) 55 Remediation of Land being repealed and replaced with the new Resilience and Hazards SEPP.

The update was undertaken by the CRCB project officer and Council representatives from each of the participating Council in the Northern River Region.

The regulatory framework for contaminated land in NSW can be divided into two tiers:

- If contamination that is significant enough to warrant regulation given the site's current or approved use, the NSW EPA is the regulatory authority under the *Contaminated Land Management Act 1997* (CLM Act).
- If contaminated land does not pose an unacceptable risk to human health or the environment under the current land use, Councils (and other planning authorities) are the regulators through the planning and development process under the *Environmental Planning & Assessment Act 1979* (EP&A Act).

As the regulatory authority through the planning and development process, Councils must consider contamination when making rezoning and development decisions, and when providing information to the community requested through the EP&A Act Section 10.7 certificates. Council also controls remediation works through the Resilience and Hazards SEPP.

In accordance with Clause 2 of Schedule 6 of the EP&A Act, Council as a planning authority is exempt from liability associated with contaminated land for anything done or omitted to be done in "good faith", which is defined as to act substantially in accordance with the Managing Land Contamination Planning Guidelines – SEPP 55 Remediation of Land 1998 ("the Planning Guidelines"). The Planning Guidelines strongly recommend that "each local council develop and adopt a formal policy for managing land contamination to provide a local context for decision making" and that "the policy should be consistent with

the Guidelines and either adopt or be based on them, with variations based on local conditions and procedure”.

This Policy is made under the Planning Guidelines and the Resilience and Hazards SEPP in order to implement a contaminated land management framework within the planning and development process of Council.

Objective

This Contaminated Land Management Policy (“the Policy”) outlines Council’s approach to the management of Contaminated or Potentially Contaminated Land that is under the regulatory control of Local Government, as stipulated by the *Environmental Planning and Assessment Act 1979* (“EP&A Act”) and Managing Land Contamination Planning Guidelines SEPP 55 - Remediation of Land (1998) (“the Planning Guidelines”) or the statutory guidelines (if any) in force under s105 of the *Contaminated Land Management Act 1997* or the *Environmental Planning and Assessment Act 1979*.

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, and 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.
- To assist the development of technical notes to guide contaminated land assessment activities.

Application

This Policy relates to Council’s responsibility in contaminated land matters as the regulatory authority for land use planning.

This Policy applies to all land within the Byron Shire Local Government Area.

1. Policy

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, as defined in Section 5(1) *Contaminated Land Management Act 1997* (“CLM Act”).

1.2 Assessing the risks of contamination

The State Environmental Planning Policy (Resilience and Hazards) 2021 (“Resilience and Hazards SEPP”) together with Ministerial Direction 4.4 Remediation of Land, 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 a proposal is suitable with regard to contamination risk is also a requirement under Section 4.15 of the EP&A Act and Council’s general environmental obligations under the *Local Government Act 1993*.

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 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. Legislative and strategic context

2.1 Legislative

The management of Contaminated or Potentially Contaminated Land is under the regulatory control of Local Government, as stipulated by the *Environmental Planning and Assessment Act 1979* (“EP&A Act”) and Managing Land Contamination Planning Guidelines SEPP 55 - Remediation of Land (1998) (“the Planning Guidelines”) or the guidelines (if any) in force under the *Contaminated Land Management Act 1997*, *Environmental Planning and Assessment Act 1979* or *Protection of the Environment Operations Act 1997*.

2.2 Community Strategic plan

The policy is linked to the following 2032 community strategic plan strategies:

- 1.1 Enhance trust and accountability through open and transparent leadership.
- 3.2 Deliver initiatives and education programs to encourage protection of the environment.
- 3.3 Protect the health of coastline, estuaries, waterways, and catchments.

3. Sustainability

Contaminated land has the potential for negative impacts on the health and wellbeing of property owners, tenants, visitors, and the natural environment. The policy empowers council and the community with transparent and equitable processes employed by council to help assess and manage the public and environmental health risks associated with the development of contaminated or potentially contaminated land.

4. Council’s decision making process

In determining all planning proposals, subdivisions 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.

4.1 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 records of 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 NSW Environment Protection Authority (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 planning proposal/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, being an extract of Appendix "A" in the Planning Guidelines, 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 NSW 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 / or Council has insufficient information on which to make a planning decision (such as gaps in historical information or insufficient records) then the applicant will be required to conduct further investigations as described below.

4.2 Council procedures for planning proposals (i.e. rezoning applications)

The Ministerial Direction 4.4 – Remediation of Contaminated Land requires Council to consider contamination issues in planning proposals, including when Council is the proponent of the planning proposal. Council will not include land in a zone that would permit a change of use of the land from the existing use unless:

1. Council has considered whether the land is contaminated;
2. 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
3. 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 Ministerial Direction 4.4, Council will require, as a minimum, a preliminary investigation to be submitted with planning proposals where the land concerned is:
 - a. land that is within an investigation area within the meaning of the CLM Act;
 - b. land on which development for a purpose referred to in Appendix A to the Planning Guidelines (included as Schedule 1 herein) 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 childcare 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 Appendix “A” to the 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).

In addition to the requirements set out in the ministerial direction 4.4, 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 land’s history, condition or other information known to Council. Should further investigations be required to assess if the land is, or can be made suitable, for all purposes permitted within the proposed zoning, Council may trigger investigations as outlined in Section 2.3.

When Council receives a planning proposal that covers more than one, or a very large 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 planning proposal stage. In these circumstances Council will consider the findings of the preliminary investigation and may include provisions in a Local Environment Plan (LEP) or Development Control Plan (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.

Council’s procedure for considering land contamination issues for planning proposals rezoning applications is shown in Figure 1

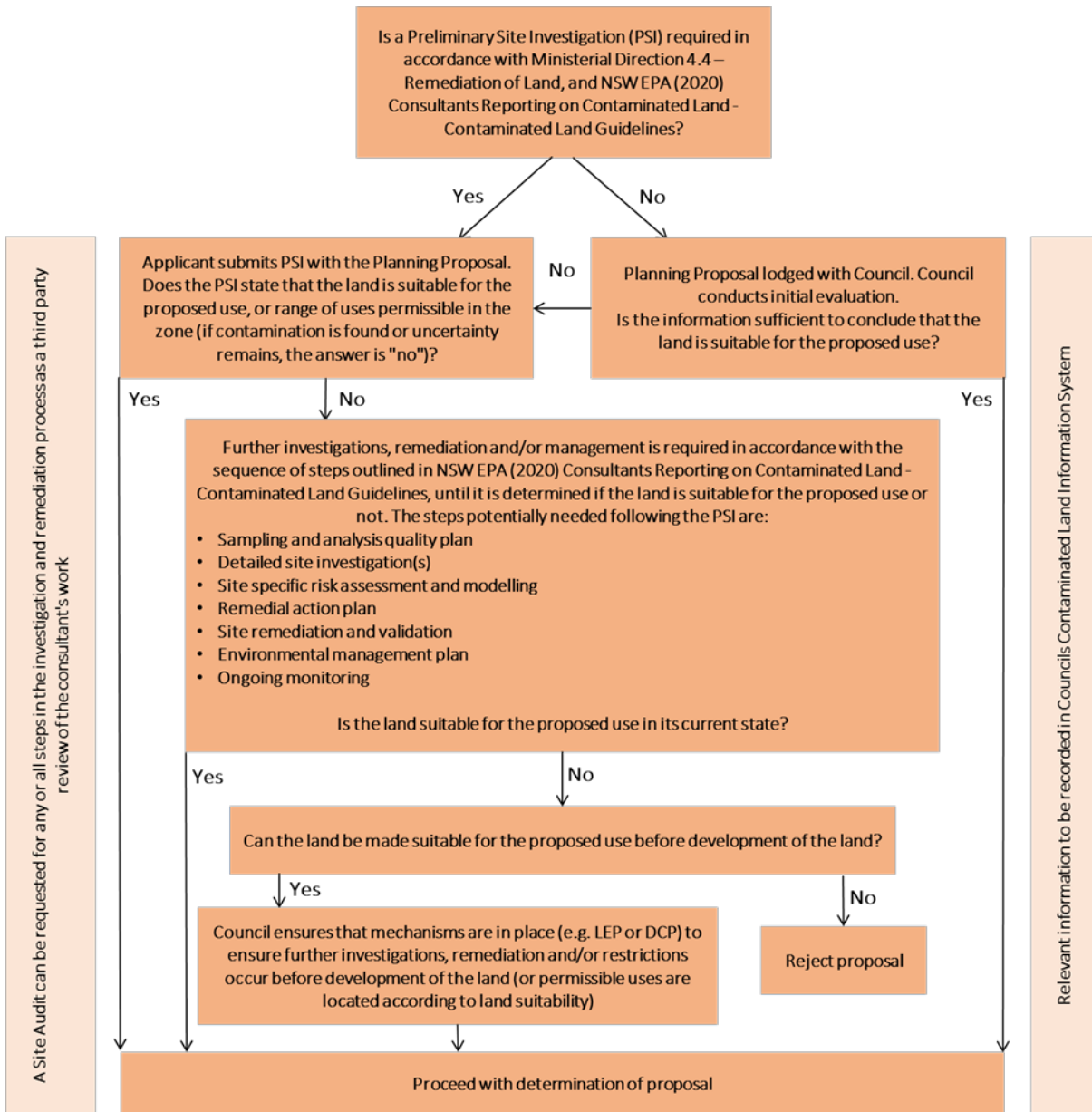


Figure 1 Council procedure for considering land contamination issues for planning proposals.

4.3 Council procedures for subdivision and development applications

Section 4.14 (c) of the EP&A Act 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 4.6 of the Resilience and Hazards SEPP, Council will not consent to the carrying out of any development on land unless:

1. it has considered whether the land is contaminated;
2. 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
3. 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.

This relates to where the land concerned is:

1. land that is within an investigation area within the meaning of the CLM Act;
2. land on which development for a purpose referred to in Appendix A to the Planning Guidelines (included as Schedule 1 herein) is being, or is known to have been, carried out;
3. to the extent to which it is proposed to carry out development on it for residential, educational, recreational or childcare purposes, or for the purposes of a hospital - land;
 - a. in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Appendix A to the Planning Guidelines has been carried out; and
 - b. 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).

Before determining an application for consent to carry out development that would involve a change of use on any of the land specified above, Council must consider a Preliminary Site Investigation of the land concerned. Council may also require a Preliminary Site Investigation when the land use is not changing if for example Council has no record of contamination assessment ever being conducted due to the age of existing developments or there is potential for contamination due to materials, for example asbestos, lead paint and pesticides, that may have been used on the site in associated with existing buildings.

The applicant for development consent must carry out the Preliminary Site Investigation and must provide a report on it to Council. Council may require the applicant to carry out, and provide a report on, a Detailed Site Investigation if it considers that the findings of the preliminary investigation warrant such an investigation. More investigations and plans may be required in the contaminated land process to determine if the land is or can be made suitable for the proposed land use prior to giving consent.

A detailed site investigation can be submitted with the application if a preliminary investigation determines that contamination is likely. Similarly, if a detailed site investigation determines remediation is required then a remediation action plan may also be submitted with the development application.

The potential steps of the contaminated land process, as outlined in NSW EPA (2020) Consultants reporting on contaminated land - Contaminated Land Guidelines, are:

- **Preliminary site investigation:** The objective of the preliminary site investigation is to assess whether contamination has the potential to exist on the site and whether further investigation is needed. This is done by collecting information on site history, site characteristics, details, and setting from desktop based searches, interviews, Council records and site visits.
- **Sampling and analysis quality plan:** The objective of a sampling and analysis quality plan is to provide the context, justification and details of the selected sampling and analysis approach. This plan should be prepared and agreed to prior to undertaking sampling.
- **Detailed site investigation:** The objective of a detailed site investigation report is to provide more complete and definitive information on issues raised in the preliminary

site investigation. The detailed site investigation report must be designed to provide information on the type, extent and level of contamination for the site.

- **Site specific risk assessment and modelling:** The objective of a site-specific risk assessment is to further assess potential for harm to human health and/or the environment from a specific site, where a detailed site investigation has identified contamination above generic criteria, but there is uncertainty as to the actual risks to human health and the environment.
- **Remedial action plan:** The objective of a remedial action plan is to set remediation objectives and document the process to remediate the contaminated site to make it suitable for its proposed land use.
- **Site remediation and validation:** The objective of the site remediation and validation is to demonstrate compliance with the remedial action plan for the site, and compliance with contaminated land guidelines and all other applicable regulatory requirements.
- **Environmental management plan:** The objective of an environmental management plan is to document mitigation measures and/or monitoring requirements, where full clean-up is not feasible, or on-site containment of the contamination is proposed.
- **Ongoing monitoring:** Sometimes ongoing monitoring of one or more media (on- and/or off-site) may be required. In these cases, a monitoring program must be documented detailing the proposed strategy, parameters to be monitored, locations, frequency, decision process for additional actions and for ending monitoring, and reporting requirements.
- **Site Audit Report:** A site audit is a third-party review by an NSW EPA accredited Auditor to provide more certainty in the process and outcomes. A Site Auditor is requested by Council, and costs are born by the proponent.

All investigations and plans are to be carried out in accordance with this Policy, the Planning Guidelines, the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (April 2013), and all guidelines made or adopted by NSW EPA under the CLM Act in particular noting the checklists for the minimum requirements within each step outlined in NSW EPA (2020) Consultants reporting on contaminated land - Contaminated Land Guidelines, or any updates thereof. Unexpected finds protocols may be required during development to address any unknown contamination remaining on site. See <https://www.epa.nsw.gov.au/your-environment/contaminated-land/statutory-guidelines> and [Non-statutory guidance documents \(nsw.gov.au\)](https://www.epa.nsw.gov.au/your-environment/contaminated-land/non-statutory-guidance-documents),

The proponent is responsible for engaging a suitably qualified consultant to undertake investigations and prepare plans (Council may require a certified consultant in accordance with Section 9 of this Policy). Reference should be made to Schedule 2 of this Policy for Council's requirements for consultants reporting on contaminated land. All contaminated land reports provided to Council are required to include a summary report synthesising key findings and recommendations as per Schedule 2.

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

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

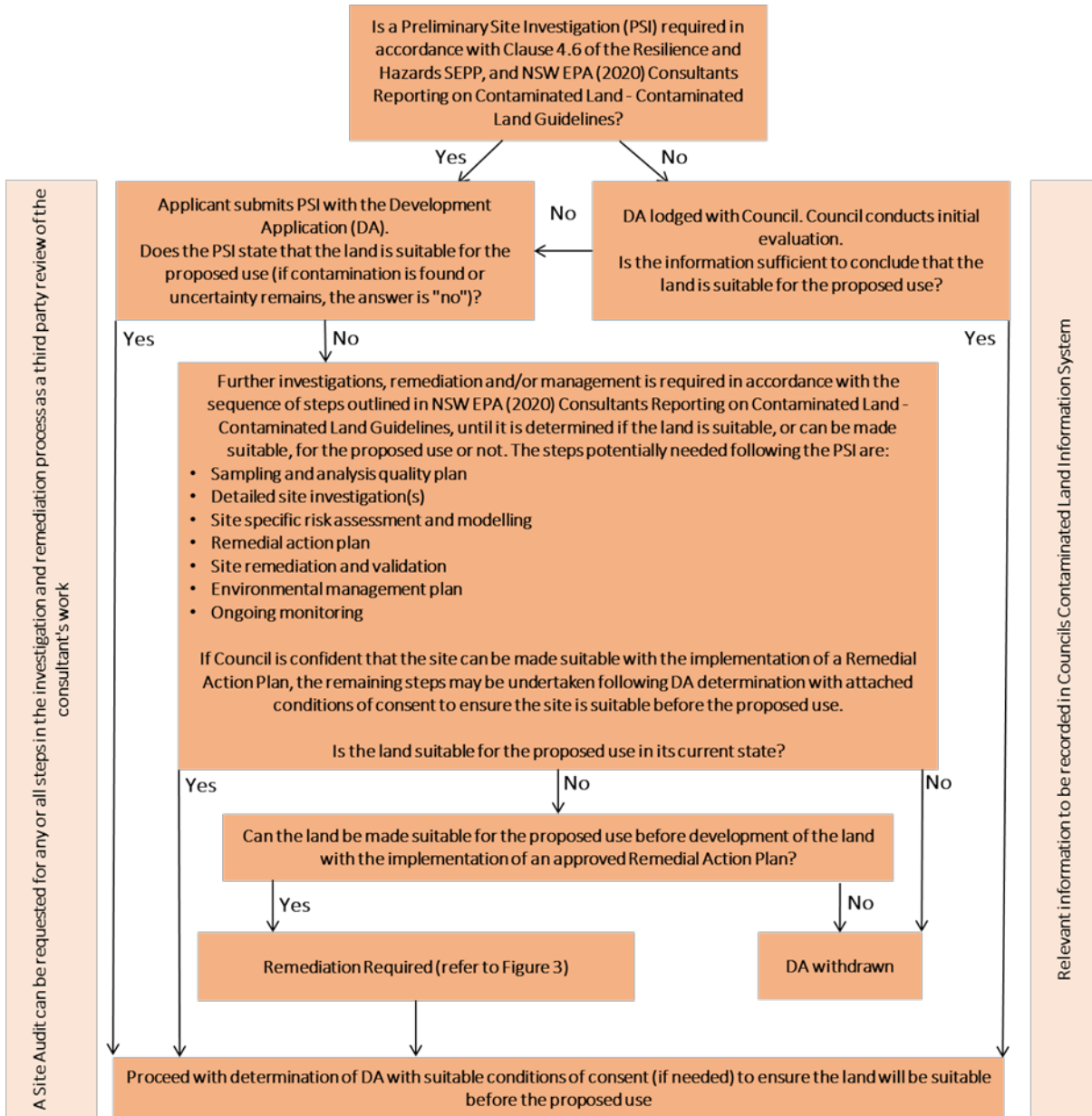


Figure 2: Council's procedure for considering land contamination issues for subdivisions and development applications assessments site remediation proposals.

4.3.1 Special considerations

Council has determined situations and types of historical uses or contamination types that requires special considerations. Those are:

Large rural holdings

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 purposes should be determined and an assessment of at least 2000m² should be undertaken using the minimum sampling densities (vertical and horizontal) specified in NSW EPA (2022) Sampling Design Part 1 – Application and Part 2 – Interpretation, and other relevant guidance made or approved by the NSW EPA. Where portion only of a site is investigated that portion needs to be identified accurately and be reproducible at any time in the future. Generally, this will require a land survey.

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.

Pre-demolition under slab pesticides testing

Chemical treatment using organochlorine pesticides beneath structures as a barrier for termites was a method that was used extensively from pre 1960's until the use of such pesticides was banned around July 1995. Where chemical treatment involving the use of organochlorine termiticides to the soil material beneath the structure may have been carried out, requirements to assess the potential for contamination will form part of determining any development applications to demolish a structure. Proponents must include their methods based on industry best practice for testing organochlorine pesticides beneath structures as part of their assessment.

Lead paint around residential buildings

When managing lead contamination in soil around a residential building, it is advisable to deal with the source (e.g. the paint on the building) first to avoid recontamination of the soil at a later stage.

Lead contamination can be assessed in accordance with the NSW EPA adopted guidelines for assessing contaminated land. However, it should also be noted that where lead from paint is the only contaminant of concern and soil is to be removed off a site, it is pre-classified in accordance with the NSW EPA (2014) Waste Classification Guidelines – Part 1: Classification of waste. The guideline provides a stepwise approach to classifying waste. Step 3 is to determine if the waste is pre-classified by the NSW EPA. Under this section, “*waste contaminated with lead (including lead paint waste) from residential premises or educational or childcare institutions*” is pre-classified as ‘general solid waste (non-putrescible)’, unless the material has been classified special waste, liquid waste, hazardous waste, restricted solid waste or general solid waste (putrescible) for other reasons.

Radiation from mineral sand mining

Various land parcels within the Byron Shire have been the subject of historical sand mining activities. These activities may have led to the concentration of naturally occurring radioactive materials (NORM) in some areas. In these instances, investigation and possibly remediation is required before the land can be subdivided or developed.

The land owner must engage an environmental consultant specialising in radiation and contaminated land, to investigate the site (generally surface and depth levels). Where radiation levels exceed relevant criteria, the land shall be remediated and validated prior to development.

Council may require any site assessment, remediation action plan and site validation to be reviewed by a NSW EPA accredited site auditor. Any person who wishes to develop land which may have been the subject of sand mining will need to consider this issue.

Information and requirements relating to assessment, remediation and validation can be found on Council's website [Contaminated land - Byron Shire Council \(nsw.gov.au\)](https://www.nsw.gov.au/contaminated-land-byron-shire-council)

NORM may exist in areas already developed. Such sites will require assessment and remediation if redeveloped, or if earthworks are undertaken (for example to install a

swimming pool). If any material is moved from the Site, it must be done in accordance with waste classification guidelines, be appropriately tracked, and disposed of at a licenced facility.

Banana Plantations

Soil surveys in the Coffs Harbour region of New South Wales conducted by New South Wales Agriculture in 1991-1992 revealed potential contamination by residual pesticides, principally arsenic and dieldrin, in land that had been used for banana cultivation. For redevelopment of sites with a history of banana plantation, NSW EPA (1997) "Guidelines for assessing banana plantation sites" must be followed, as well as other relevant guidelines presented on the NSW EPA website.

Underground Petroleum Storage Systems

Underground Petroleum Storage Systems (UPSS) can leak and contaminate surrounding land and groundwater, creating risks to human health and the environment.

UPSS are most common at service stations but may be found where fuel is used, for example at marinas, work depots, airports, car dealerships, or government facilities. Operators of UPSS must have systems in place to prevent, report, and fix leaks if they happen. Council is the regulator for almost all UPSS in NSW.

In NSW, the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 describes how UPSS are managed and regulated. The NSW EPA website also presents several guidance documents and factsheets outlining how UPSS are to be decommissioned, installed, monitored and modified. The guidance documents include NSW EPA (2023) "Contamination assessment of service station sites - Minimum sampling requirements", which must be followed when assessing service station sites.

Cattle tick dips and buffers

Many cattle tick dip sites are contaminated due to past use of arsenic and DDT. Arsenic was used as the tickicide in the dip solution up until 1955 when the ticks became resistant to it. DDT, an organochlorine was then used until it too became ineffective in 1962. Since 1962 other much less persistent tickicides have been used to dip cattle. Although the use of DDT was banned in 1985, arsenic and DDT can still be found at high levels in the soil beside many dip baths today because they are very persistent compounds.

There are 1,648 dip sites scattered throughout the far North Coast of NSW. To assist in the recognition of these old dip sites, whether they remain standing, are dilapidated or have been destroyed, a register of known cattle dip sites in that region is maintained by the NSW DPI.

Cattle tick dips must be assessed in accordance with *Guidelines for the Assessment and Cleanup of Cattle Tick Dips for Residential Purposes (1996)*, and other relevant guidelines endorsed by the NSW EPA. The guidelines explain the layout of a dip site, the process typically followed at a dip site, what contamination may be present, and where contamination is likely to be found. The consultant and auditor (if needed) appointed must have experience in cattle tick dip assessment and remediation.

Situations that require a site audit

Some types of contamination and sources will always require a site audit (see further information on site audits in Section 9 of this policy). These are:

- Large rezoning subdivisions with a cropping / orchard history.
- Cattle tick dip sites.
- Sites with Underground Petroleum Storage Systems (UPSS).
- Sites where an ongoing environmental management plan will be in place following assessment and remediation.
- Where contamination remains capped and contained on a site.

Composite sampling

Composite sampling of soils involves mixing several discrete samples or sub-samples of soil to form one composite sample for analysis. As described in the NSW EPA (2022) Sampling design part 1 – application, composite samples should only be used in former orchards and market gardens as described in DEC (2005), Contaminated sites: Guidelines for assessing former orchards and market gardens.

Composite samples cannot be used for validation sampling purposes.

The maximum number of discrete samples that are allowed is four (ASC NEPM, 2013). To ensure they are representative of similar materials, samples must be collected from the same stratigraphic unit and from no further apart than 20 m. Subsamples for compositing should not be collected where there is spatial or temporal variability.

In principle, the concentration of the composite sample represents the average of the sub-samples. As a consequence, a sub-sample that contains a high concentration of contaminant can remain undetected due to the dilution effect of the compositing process if used inappropriately. Where composite sampling has been used, the relevant assessment level should be divided by the number of sub-samples in the composite and compared with the laboratory result (as described in schedule B2 of ASC NEPM, 2013). It is important to check that the assessment level, when divided by the number of samples, is higher than the laboratory limit of reporting (LOR) prior to using this sampling method.

Composite sampling also has the following limitations:

- It cannot be used to assess pH, or volatile or semi-volatile contaminants including TRH, BTEXN, OCPs, OPPs and low molecular weight PAHs. As a result, a good understanding of the site history and the contaminants of potential concern (CoPC) are necessary for adopting a composite sampling approach.
- Composite sampling is not suitable for clay or fine-grained soils, as subsamples are difficult to mix adequately.

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

A Preliminary Site Investigation is to:

- Identify any past or present potentially contaminating activities.

- To provide a preliminary assessment of site contamination, included in a Conceptual Site Model.
- Identify potential contamination types.
- Assess if the site is suitable for the proposed land use or if there is a need for further investigations.

The required information sources to be used as a basis for the investigation are outlined in NSW EPA (2020) Consultants reporting on contaminated land - Contaminated Land Guidelines, which also refer to the NEPM toolkit “Site Characterisation” field checklist for the full list of information sources (available in an excel spreadsheet on the NEPM toolkit webpage). Applicants may also request Council perform a search of its records to identify previous developments approvals for the site.

A Preliminary Site Investigation may include sampling and analysis if considered beneficial, for example to inform further investigations. However, the steps of the NSW EPA (2020) Consultants reporting on contaminated land - Contaminated Land Guidelines are to be followed to conclude if the site is suitable for the proposed land use, and limited sampling as part of a Preliminary Site Investigation will not be accepted where a Detailed Site Investigation is to be triggered.

In addition to the requirements outlined in Clause 4.6 of the Resilience and Hazards SEPP, Council will also require a Preliminary Site Investigation to be submitted when:

1. Council has reasonable grounds to believe the land is contaminated because of the land’s history, condition, or other information known to Council.
2. 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.
3. 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.
4. Council records have demonstrated that the site is associated with pollution incidents or illegal dumping of wastes.
5. 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.
6. The development works will disturb and/or expose soils (generally under slab) previously treated with organo-chlorines associated with termite management practices or potentially contaminated with asbestos.

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

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

A Detailed Site Investigation is to:

- Provide comprehensive information on the issues raised in the Preliminary Site Investigation.

- Fully characterise the type(s) and level(s) of contamination and the lateral and vertical extent both on and off site.
- Include an updated Conceptual Site Model.
- Assess the potential risk posed by contaminants to human health and the environment.
- Include a statement as to whether or not the site is suitable for the proposed land use or can be made suitable with remediation.
- Obtain sufficient information for the development of a Remedial Action Plan (if necessary).

A Sampling and Analysis Quality Plan is to be agreed on prior to undertaking a Detailed Site Investigation.

Council will require a Detailed Site Investigation to be undertaken when the results of the Preliminary Site 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 Site Investigation.

Several investigations may be included at this stage of the process to determine if the site is or can be made suitable for the proposed land use. These can be (for example) Site Specific Risk Assessments, modelling, and delineation of identified contamination.

4.3.4. When does Council require a Remedial Action Plan (RAP or Stage 3)?

A Remedial Action Plan is to:

- Set remediation objectives.
- List feasible remediation options and determine the most appropriate remedial strategy.
- Consider Sustainable Remediation in accordance with Australian Standard (AS ISO 18504:2022 Soil quality – sustainable remediation).
- Include pre -, and post - remediation Conceptual Site Models.
- Include a statement as to whether or not the site can be made suitable for the proposed land use with the implementation of the Remedial Action Plan.
- Identify necessary approvals that need to be obtained from regulatory authorities.

The RAP should document the remedial works to be undertaken at the site and also contain an environmental management plan and occupational health and safety plan for the remedial works.

Prior to determining development applications, Council must be satisfied that remedial measures have been, or will be, undertaken in accordance with the submitted Remedial Action Plan, to make the site suitable for the proposed use.

If the remediation proposed is Category 1 (i.e. remediation work that requires Council development consent), Council may:

1. Require the applicant to amend the Development Application (DA) (if already submitted) to include a RAP.
2. Require a new separate DA for the remediation works before final use of the site is approved.

If the proposed remediation is category 2 (i.e. remediation work that does not require consent), Council may:

1. Impose conditions on the development consent for the use, requiring remediation to be carried out and validated either before works commence or before occupation of the site.
2. Issue a deferred commencement consent for the use of the site and require remediation to be carried out and validated before the consent commences and other works can occur.

In accordance with clause 4.14 (c) of the Resilience and Hazards SEPP, all category 1 remediation work must be carried out in accordance with a Remedial Action Plan approved by Council and prepared in line with the CLM Act, any guidelines made or adopted by the NSW EPA, and the planning guidelines.

4.3.5 When does Council require a Validation Report (Stage 4 Report)?

A Validation 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, WorkSafe 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.
- Include a post remediation Conceptual Site Model.
- Include a clear statement on the suitability of the site for the proposed land use and refer to any restrictions and management plans that may apply.

Ideally, validation should be conducted by the same consultant that conducted the site investigation and remediation process. Validation must confirm statistically that the remediated site complies with the remediation objectives set for the site. Council will require a Validation Report to be submitted after remediation works have been completed, and prior to the commencement of building construction works. This will normally be achieved by Council placing a condition on any consent granted, requiring the submission of a Validation Report prior to the issuing of a construction certificate. This would be the case for small scale development sites involving straight forward issues.

Alternatively, Council may issue deferred commencement consent for the proposed use, requiring that remediation and validation is undertaken prior to the consent 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.

If demolition is required prior to a detailed assessment or remediation being possible, approvals will be carefully conditioned to accommodate the staging of works and contamination assessment and remediation.

Note: Council will record all information gained through the investigation process via the Contaminated Land Register. This will be done even if reporting concludes contamination matters are not restrictive to the proposed land use.

4.3.6 Environmental management plan and monitoring

Where full clean-up is not feasible and contamination remains on site, or on-site containment of the contamination is proposed, an Ongoing Environmental Management Plan (OEMP) should be prepared. The OEMP should include any ongoing monitoring requirements and document mitigation measures and/or monitoring requirements in accordance with NSW EPA (2020) Consultants reporting on contaminated land - Contaminated Land Guidelines, and NSW EPA (2022) Preparing Environmental Management Plans for Contaminated Land.

The NSW EPA (2022) Preparing Environmental Management Plans for Contaminated Land, states that “*An environmental management plan for contaminated land should not be finalised without identifying and considering – with input from affected stakeholders – the legal mechanism intended to make it enforceable.*” Some potential mechanisms to do so are identified as follows:

1. *Conveyancing Act 1919* (Conveyancing Act) – restrictions or public positive covenants on land (which run with the land), which:
 - a. can be imposed by a prescribed authority (including EPA and Council) on any land not vested in the authority, with landowner consent (section 88E).
 - b. may be created by deed of agreement between private parties owning land (section 88).
2. CLM Act – ongoing maintenance orders (section 28).
3. EP&A Act – development consent conditions (section 4.17).
4. Work Health and Safety Regulation 2017 – asbestos management plan (Part 8.3, cl 429).
5. Orders made under section 124 of the *Local Government Act 1993* might also be considered.

Depending on the outcomes of remediation works, and type of restriction needed, Council may require a restriction to the title of the land under section 88B of the Conveyancing Act to enforce ongoing management or monitoring and to notify future owners.

Council may not agree to accept an OEMP that places undue costs or responsibility on it or on future site owners, occupiers or owners corporations. For example, Council may not agree to the OEMP specifying active management systems that will require future site owners, occupiers or owner’s corporations to carry out substantial maintenance and monitoring.

4.3.7 Environmental management plan and monitoring

The duty to report contamination to the NSW EPA is a requirement under the CLM Act. The following people are required to report contamination as soon as practical after they become aware of any contamination that meets the triggers for the duty to report (outlined in NSW EPA (2015) Guidelines on the Duty to Report Contamination under the CLM Act):

- Anyone whose activities have contaminated land.
- An owner of land that has been contaminated.

It should be noted that although the above people have the duty to report contamination, anyone can at any time report suspected contamination to the NSW EPA. Where Council considers that contamination on a site triggers the duty to report contamination, and it is not clear if the polluter or site owner has reported the contamination, it may notify the EPA for possible action under the CLM Act.

5. Council's requirements for remediation work

The Resilience and Hazards SEPP 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 works and outlines the site management provisions for category 2 remediation work.

In accordance with Clause 4.8(f) of the Resilience and Hazards SEPP, remediation work that is not carried out in accordance with the site management provision contained in Section 8 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
- Carried out in accordance with guidelines made or approved by NSW EPA in accordance with the CLM Act.

5.1 Category 1 remediation work

Category 1 remediation work, as defined in Clause 4.8 of the Resilience and Hazards SEPP, 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 in accordance with the EP&A Act.

The exact definition of category 1 remediation work is complicated, and interested persons should refer to Clauses 4.8 and 4.10 of the Resilience and Hazards SEPP. In general, category 1 remediation work comprises remediation work that is:

1. Designated development
2. Carried out on critical habitat declared under the Threatened Species Conservation Act 1995 or the Fisheries Management Act 1994
3. Likely to have a significant effect on critical habitat or a threatened species, population or ecological community declared under those Acts
4. Carried out within any of the following zones under an Environmental Planning Instrument
 - a. coastal protection
 - b. conservation or heritage conservation
 - c. habitat area, habitat protection area, habitat, or wildlife corridor
 - d. environment protection

- e. escarpment, escarpment protection or escarpment preservation
 - f. floodway
 - g. littoral rainforest
 - h. nature reserve
 - i. scenic area or scenic protection
 - j. wetland.
5. The subject of a remediation order under the CLM Act, and required to be commenced before the expiry of the usual appeal period for such an order
 6. 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.

5.2 Category 2 remediation work

Category 2 remediation work is all remediation work that is not category 1 remediation work. In accordance with Clause 4.13 of the Resilience and Hazards SEPP, 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 4.13(3) of Resilience and Hazards SEPP, 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:

1. Copies of the Preliminary Investigation, Detailed Investigation and Remedial Action Plan for the subject site
2. 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 8 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. Therefore, it is recommended that comprehensive records are maintained during the remediation and validation works for all sites.

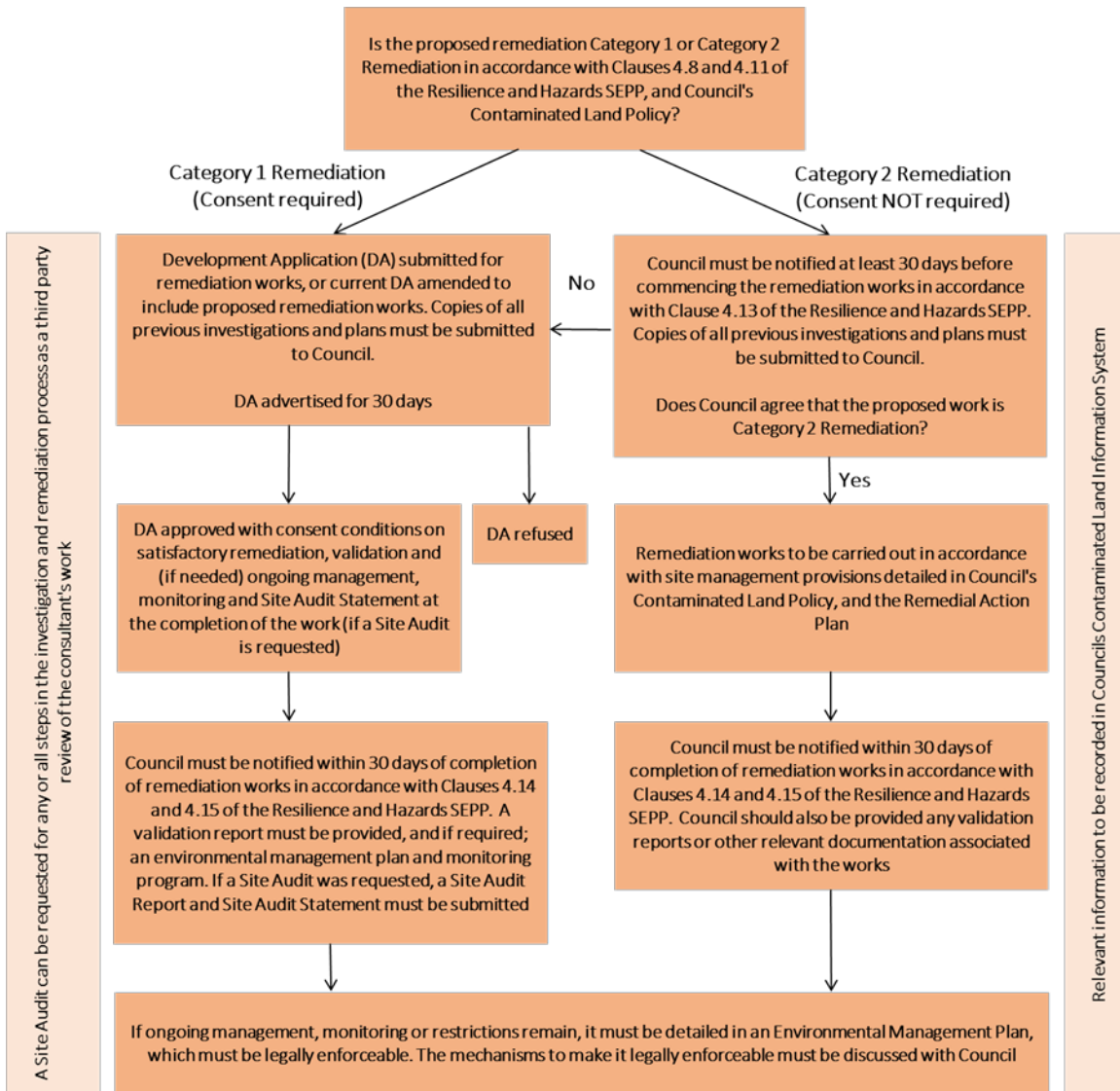


Figure 3: Council process for considering site remediation proposals.

6. Site Management category 2 remediation.

Council has identified a number of minimum site management provisions for 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 the site Remedial Action Plan. 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 POEO Act 1997. Non-compliance with the relevant legislation i.e. POEO

Act or EP&A Act may result in the issue of Penalty Infringement Notices (PINs) as defined at the time of the matter.

6.1 Site management provisions

6.1.1 Legislation and guidelines

All remediation work must comply with the requirements of:

- The CLM Act
- The Managing Land Contamination Planning Guideline 1998
- Resilience and Hazards SEPP
- The *Protection of the Environment Operations Act 1997*.

6.1.2 Remediation proposal

The remediation works shall be carried out in accordance with the Council approved RAP. Council shall be informed of any variations to the proposed remediation work.

6.1.3 Site validation

Council must be provided with information regarding the validation of the site within one month of completion of the remediation works. This notification should take the form of a Validation Report in accordance with the Consultants reporting on contaminated land - contaminated land guidelines (NSW EPA 2020) and may address the following issues;

- Description and documentation of all works undertaken
- Include results of validation testing and monitoring
- Outline how all clean-up criteria and relevant legislation has been complied with
- Determine the suitability of the site for the current or proposed use of the site.

6.1.4 Discovery of additional information during remediation

Council must be notified of any new information that comes to light during remediation that has the potential to alter previous conclusions regarding site contamination.

Unexpected finds

It is always possible that contamination has been missed, and unexpected finds during site remediation are common. An RAP should therefore include an unexpected finds protocol that specifies what action should be taken when this occurs.

Where during works, unexpected contamination is discovered, all works in that area must stop and a certified contaminated land consultant (certified consultant) advised of the find. Category 2 works may only re-commence after the certified consultant has assessed the land and determined if it requires remediation, and if so, how it should be conducted.

Councils should be notified within 2 days of unexpected finds that are category 1 works or if the RAP does not address the remediation of the category 2 unexpected find discovered. A development application must be lodged if the unexpected finds are identified as category 1 works with a revised RAP submitted to address the unexpected find.

Archaeology discovered during excavation

If any object of interest due to its age or association with the past is uncovered during the work:

- all work must stop immediately in that area, and
- the Environment, Energy and Science division of the Department of Planning, Industry and Environment must be advised of the discovery.

Note: Depending on the significance of the object uncovered, an archaeological assessment and excavation permit under the *Heritage Act 1977* may be required before further work can continue.

Aboriginal objects discovered during excavation

If an Aboriginal object (including evidence of habitation or remains) is discovered during the work:

- all excavation or disturbance of the area must stop immediately, and
- the person making the discovery must advise the Chief Executive (within the meaning of the National Parks and Wildlife Act 1974) of the discovery in accordance with section 89A of that Act.

Note: If an Aboriginal object is discovered, an Aboriginal heritage impact permit may be required under the *National Parks and Wildlife Act 1974*.

6.1.5 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 to take place on Sundays or Public Holidays

6.1.6 Services within the remediation area

Any drains, sewers or water services must be disconnected and sealed at the boundary of the remediation area by a licenced plumber, in accordance with the requirements of the relevant authority. For any underground excavation, a dial before you dig query must be submitted to establish any underground utilities and services. Where dial before you dig does not extend into the site boundary a service locator should be engaged to identify any potential service locations within the remediation area.

6.1.7 Earthworks, retaining walls and structural support

Any excavation must be carried out in accordance with Excavation Work: Code of Practice (SafeWork NSW 2015), or subsequent revisions of that code.

Any excavation left open overnight or when the site is unattended must be individually fenced with barrier mesh.

6.1.8 Soil and water management

All remediation works shall be conducted in accordance with a site specific soil and water management plan prepared in accordance with the requirements of the Managing Urban Stormwater – Soils and Construction, LANDCOM, March 2004. The plan should aim to segregate and manage both contaminated and non-contaminated areas in a manner that minimises the potential dispersal of contaminants and any cross-contamination of contaminated and non-contaminated materials.

In most cases standard erosion and sediment control requirements will be inadequate for managing contaminated soils and water. A copy of the RAP and 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 LEP and provisions relating to acid sulfate soils and associated acid sulfate soils map to determine whether development consent is needed and 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 Acid Sulfate Soil 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

Stockpile management should ensure it does not cause any contamination of underlying soils. Stockpiles of potentially contaminated soil should be placed on hardstand or otherwise on polyethylene sheeting.

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, storm water pits and inlets, and must be stabilised by compacting and contouring to control wind exposure and allow access for the water truck. 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, odours and air borne particulates (discussed below).

Stockpiles should be clearly labelled with a unique identification number and a record of the volume and origin of soil to enabling tracking of soils from excavation to final disposal or re-use on site.

Dewatering - excavation / groundwater pump-out

Water must not be allowed to accumulate in any excavation but must be removed by pumping. Excavation pump-out water must be transported to an appropriately licenced facility for disposal or discharged to sewer under a trade waste agreement.

Only clean and unpolluted waters are to be discharged to Council's storm water system or any watercourse. Any discharge must satisfy the provisions of the POEO Act 1997. Prior to any dewatering commencing a Dewatering Management Plan shall be submitted to and approved by Council.

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 storm water. If necessary, the water shall be treated prior to discharge. If the water quality does not comply with the identified criteria can not to be discharged to storm water. Alternative arrangements for the disposal of water shall be provided if necessary i.e. off-site disposal by a licensed liquid waste transporter for treatment/disposal to an appropriate waste treatment/processing facility.

Dewatering may require a licence from the NSW Office of Water (at the time of document revision licences were required if the volume of dewatering exceed 3 mega litres).

Landscaping / rehabilitation and tree protection

All exposed areas shall be progressively stabilised and revegetated on the completion of remediation works. Large, exposed areas will require the application of a sterile hydromulch and repeat applications may be required if the seed does not germinate within 14 days.

Appropriate measures must be adopted to safeguard protected trees and generally protect vegetation during remedial works.

Where it is proposed to undertake works within the canopy drip line of a protected tree (being a tree that requires a permit or development consent for pruning or removal), then the advice of an arborist must be sought on suitable protection measures and those measures must be implemented.

Bunding

Any area used for the remediation of contaminated soils or stockpiles shall be banded to contain surface water runoff and run on 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 storm water 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 POEO Act 1997.

6.1.9 Noise and vibration

Remediation works must be carried out in such a way as to minimise disturbance to neighbours and other members of the public. In any event noise levels, should be maintained below the maximum levels specified in Australian Standard AS 2436 - Guide to noise and vibration control on construction, demolition and maintenance sites, the Protection of the Environment Operations (Noise Control) Regulation 2017 and the EPA's Interim Construction Noise Guideline 2009.

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 exceeding the relevant NSW EPA guidelines and Australian Standards, on any premises.

6.1.10 Air quality

Dust control

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

- Work must be programmed to minimise the exposed soil surface at any time.
- The erection of dust screens around the perimeter of the site and any material handling areas
- Stockpiles should not exceed the height of the fencing to reduce dust and odours spreading to the surrounding environment.
- Securely covering all loads entering or exiting the site
- Use of water sprays across the site to suppress dust, particularly on haulage roads and high-volume non-tarmac areas.
- Covering of all stockpiles of contaminated soil remaining more than 24 hours
- Keeping excavation surfaces & stockpiles moist.
- Operators must monitor the dust conditions within the site along the site boundary during works likely to generate dust and ensure on-site work is not causing off-site impacts.
- Work must be delayed or limited during periods of high wind to prevent materials becoming airborne.

Odour / vapour control

Remedial activities must be controlled such that all equipment used, and all facilities constructed are designed and operated to control the emission of smoke, fumes and vapour into the atmosphere, and emissions from odorous soils and liquids in excavations and stockpiles in minimised.

Control measures may include:

- Construction equipment being properly maintained so that exhaust emissions comply with the Clean Air Regulations issued under the Protection of the Environment Act Operations 1997; and
- Use of appropriate covering techniques such as the use of plastic sheeting to cover excavation faces or stockpiles
- The spraying or misting of odour suppressants on exposed soil surfaces, stockpiles and at the site boundary.
- Use of a hydrocarbon mitigating agent on the impacted areas/materials.

When odour is an issue, site activities should be planned and carried out based on forecast and observed odour-significant weather conditions.

Some examples of products that include volatile or semi-volatile compounds (VOCs and SVOCs) are many pesticides, oil-based products, phthalates (in plastics) and fire retardants. VOCs and SVOCs 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, anilines, solvents, phenols and herbicides.

6.1.11 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 CLM 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 Primary Industries - Office of Water. These works include bores for water supply, testing and monitoring, and any dewatering or extraction. If the groundwater at the site is found to be contaminated, Council, the Department of Primary Industries - Office of Water and the NSW EPA are to be notified.

6.1.12 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
- utilise State Roads and minimise use of local roads.

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
- Conduct deliveries of soil, materials, equipment or machinery during the hours of remediation work identified above under Hours of Operation.

Vehicle entry and exit points must be stabilised with suitable aggregate to prevent erosion and tracking of sediment onto roads and footpaths. An appropriate system such as a wheel-wash station and sediment controls must be installed at the exit point to prevent the

tracking of soil, sediments, and other materials onto public roads and into stormwater drains.

6.1.13 Hazardous materials

Hazardous and/or industrial wastes arising from the remediation work shall be classified, removed and disposed of in accordance with the requirements of the NSW EPA and WorkSafe Authority, together with the relevant regulations.

Under the POEO 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 EPA. There are also specific requirements in relation to the transport and tracking of asbestos waste. All receipts for waste disposal shall be retained and supplied to Council upon request.

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

6.1.14 Asbestos management

Asbestos contamination of soils is a pervasive problem in contaminated land management. Given the widespread use of asbestos-containing materials (ACM) in construction materials and in industry throughout NSW, asbestos contamination must be anticipated during the assessment or remediation of any potentially contaminated land, even when it has not been identified as a primary contaminant of concern on the basis of the site history and other inputs to a preliminary investigation.

If ACM or soil containing asbestos is encountered during remedial work, it must be removed from the site as asbestos waste or appropriately managed on site.

A site-specific asbestos management plan must be prepared to ensure compliance with the regulations and protection of the site and members of the public. SafeWork NSW must be consulted regarding the need for asbestos monitoring at the site boundary.

Note: The regulatory framework is set out in the:

- Work Health and Safety Act 2011
- Work Health and Safety Regulation 2017 – Chapter 8
- Protection of the Environment (Waste) Regulation 2014

Essential guidance is provided in:

- Managing Asbestos Waste in or on Soil (WorkCover 2014)
- National Environment Protection (Assessment of Site Contamination) Measure 1999, as revised 2013 (ASC NEPM)
- How to manage and control asbestos in the workplace: Code of Practice (SafeWork 2016)
- How to safely remove asbestos: Code of Practice (SafeWork 2016)
- Code of Practice for the Management and Control of Asbestos in Workplaces (NOHSC: 2018 (2005))
- Code of Practice for the Safe Removal of Asbestos, 2nd edition (NOHSC: 2002 (2005))

Key elements of the regulatory regime are that:

- Asbestos assessment and management on contaminated land must be carried out by a competent person. A competent person in the context of asbestos and the ASC NEPM (and also the NSW regulation) is a person who has acquired, through training or experience and qualification, the knowledge and skills to identify, investigate and assess asbestos in the context of an environmental site assessment. This includes identifying the potential for asbestos contamination from site history information.
- Removal (including removal from contaminated land) of:
 - more than 10 m² of non-friable asbestos or ACM
 - Asbestos containing debris associated with the removal of more than 10 m² of non-friable asbestos or ACM
- Must be carried out by a person who holds either a Class A or a Class B asbestos removal licence (Work Health and Safety Regulation 2011 Clause 487)
- Removal of friable asbestos (including from contaminated land) must be carried out by a person who holds a Class A asbestos removal licence (Work Health and Safety Regulation 2011 Clause 485)
- A person disposing of asbestos waste off the site at which it is generated must do so at a landfill site that can lawfully receive the waste (Protection of the Environment (Waste) Regulation 2014 Clause 80)
- There are also strict requirements regarding the transport of asbestos waste (Protection of the Environment (Waste) Regulation 2014 clauses 77 to 79).

6.1.15 Waste management and disposal of contaminated soil

Any soil or other solid material excavated during remediation that is not suitable for re-use on site or is surplus to site requirements must be removed from the site as waste. Prior to removal from the site waste must be classified in accordance with the Waste Classification Guidelines (EPA 2014). All waste must be taken to a suitable waste disposal facility that can lawfully accept the waste types and disposal dockets kept and attached to the Notice of Completion.

Applicants shall consult with Council's Waste Management Section to determine the capability of Council's Waste Management Facility to accept contaminated waste. All receipts for waste disposal shall be retained and supplied to Council upon request.

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.

6.1.16 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 development sites in NSW for the range of land uses permissible on the subject site. The on-site containment of contaminated soil is a Category 1 activity under this policy and requires development consent from Council. The soil investigation levels for urban redevelopment in NSW are contained in National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), and other relevant guidance where needed.

6.1.17 Ongoing environmental management plans

Where the proposed remediation involves leaving contaminated soil or groundwater onsite, an ongoing environmental management plan (OEMP) is needed. Sites with OEMPs are Category 1 activities under this policy and require development consent from Council.

OEMPs are to be prepared in accordance with NSW EPA (2022) practice note: Preparing environmental management plans for contaminated land.

The obligations in an OEMP must be legally enforceable. Common legal mechanisms for achieving this in NSW are provided under:

- Conveyancing Act 1919 (Conveyancing Act) – restrictions or public positive covenants on land
 - (which run with the land), which
 - can be imposed by a prescribed authority (including EPA and Council) on any land not vested in the authority, with landowner consent (section 88E)
- may be created by deed of agreement between private parties owning land (section 88)
- CLM Act – ongoing maintenance orders by the NSW EPA (section 28)
- EP&A Act – development consent conditions (section 4.17)
- Work Health and Safety Regulation 2017 – asbestos management plan (Part 8.3, cl 429).

Orders made under section 124 of the *Local Government Act 1993* might also be considered.

An OEMP should not be finalised without identifying and considering the legal mechanism intended to make it enforceable, with input from affected stakeholders.

Note: Where Council is required to be involved, it may not agree to accept an OEMP that places undue costs or responsibility on it or on future site owners, occupiers or owners corporations. For example, Council may not agree to an OEMP specifying active management systems that will require future site owners, occupiers or owner's corporations to carry out substantial maintenance and monitoring.

6.1.18 Vertical mixing

The NSW EPA has confirmed that the 'Guidelines for the Vertical Mixing of Soil on Former Broad-Acre Agricultural Land' relate to the remediation of large agriculture properties with low levels but broad spread contamination. They are not designed or suitable for use in the remediation of contamination, including lead contamination, on small allotments. Therefore, Council will not support RAPs relying on this methodology, and an alternative remediation methodology shall be used on any other sites than those classified as former broad-acre agricultural land.

6.1.19 Importation of fill

Material imported for use as backfill must be:

- virgin excavated natural material (VENM) classified as such in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (EPA 2014), or

- excavated natural material (ENM) meeting the requirements of the Excavated Natural Material Exemption 2014, and
- compatible with the existing soil characteristics of the site.

Council may require details of the appropriate validation of imported fill material to be submitted with any application for future development of the site.

6.1.20 Site signage and contact numbers

Signage, explaining the purpose of the work and displaying site manager, contractor and consultant details and contact numbers should be erected near the entrance to the remediation area. The signage must remain displayed throughout the duration of the works.

6.1.21 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 seven days prior to the commencement of category 2 remediation works. The notification shall be in writing and shall detail works occurring, the expected duration of the works and provide contact details for enquiries or complaints.

6.1.22 Site security

The site shall be secured to ensure against unauthorised access using appropriate fencing. A temporary hoarding or temporary construction site fence must be erected between the remediation site and adjoining lands before the works commence and must be kept in place until after completion of the work.

Access must be restricted solely to authorised staff and contractors who have appropriate site safety induction and any personal protective equipment required for the remediation works. The site supervisor must control site access and induct authorised visitors on an 'as needed' basis.

6.1.23 Work health and safety

It is the employer's responsibility to ensure that all site remediation works shall comply with all work health and safety requirements of the NSW SafeWork.

6.1.24 Removal of underground petroleum storage tanks

Decommissioning, assessment, removal (UPSS and any associated contaminated material) and remediation validation of UPSS must follow the requirements of SafeWork NSW, as set out in the Code of Practice - Demolition Work (September 2016) and the Excavation Work Code of Practice (July 2015). It must also follow the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019, and associated guidelines under the UPSS regulation, CLM Act, and relevant Australian standards such as AS 4976–2008: The removal and disposal of underground petroleum storage tanks.

Any contained fluids must be removed, and the tank degassed prior to removal from the ground. Contained fluids must be consigned to a liquid waste disposal facility that may

lawfully receive them. For further information see the EPAs UPSS Technical Note: Decommissioning, Abandonment and Removal of UPSS.

Note that SafeWork NSW is responsible for regulating worker safety relating to 'abandoned' underground tanks or systems at a workplace.

Note: The Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 requires that the person responsible for the storage system must notify the relevant local authority of the decommissioning no later than 30 days before the system is decommissioned or removed and also requires a report to be prepared following decommissioning of underground petroleum storage systems.

7. Accredited consultants and contaminated site audits

7.1 Accredited Consultants

Contaminated site assessments are inherently complex and usually present a wide range of issues. Engaging professionals who have the relevant qualifications, competencies and experience is important when investigating and managing contaminated sites. For this purpose, Contaminated Land Consultant certification schemes was developed to ensure those Consultants dealing with contaminated sites have the necessary competencies to carry out the work. Certification under a recognised scheme should be interpreted as the Consultant meeting at least an acceptable minimum standard of competency. Currently, the certification schemes recognised by NSW EPA and the Council are:

- Environment Institute of Australia and New Zealand's (EIANZ) Contaminated Land Specialist Certified Environmental Practitioner (Site Contamination Specialist CEnvP) scheme
- Soil Science Australia (SSA) Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) certification.

Council may require that a contaminated land report is to be prepared or reviewed and approved by an appropriately qualified and certified Environmental Consultant, under one of the approved schemes.

7.2 Contaminated site audits

The NSW site auditor scheme provides a pool of accredited site auditors who can be engaged to review investigation, remediation, and validation work done by contaminated land consultants.

The scheme is administered by NSW EPA under Part 4 of the CLM Act. It improves public access to competent technical advice and provides increased certainty in the sign-off of contaminated land assessments and remediation. As a general principle, a site audit will only be necessary when Council:

1. Believes on reasonable grounds that the information provided by the proponent is incorrect or incomplete.
2. Wishes to verify whether the information provided by the proponent has adhered to appropriate standards, procedures and guidelines.
3. Does not have the internal resources to conduct its own technical review.

However, a statutory site audit will be required for all works undertaken at high risk sites as defined in Section 2.

All costs associated with providing a Site Audit are to be borne by the Proponent.

Where Council (or the NSW EPA) uses its legal powers to require the carrying out of a site audit, for example through conditions of consent or requests of information for a development application, the site owner or developer must commission a Site Auditor accredited under the CLM Act to perform this task. This is known as a 'statutory' audit. The CLM Act requires that an auditor must notify the EPA when they have been commissioned by anyone other than the EPA to perform a statutory site audit. The auditor is also required to send Council and the NSW EPA a copy of the completed SAS and must give a copy of the SAR to Council / the consent authority and/or the NSW EPA on request.

In some cases, the site owner or developer may wish to have a site audit undertaken although it is not a legal requirement. The audit is termed 'non-statutory'. If their intention is to obtain a SAS, they must commission a Site Auditor accredited under the CLM Act to perform this task. This is because only a site auditor so accredited can issue a site audit statement, and they are obliged to issue one at the end of any site audit. For non-statutory audits, the Site Auditor must give a copy of the SAR to the EPA on request.

The requirements that site auditors must follow in conducting site audits and preparing site audit statements and site audit reports are outlined in NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (3rd edition). The outcomes of a site audit are a site audit statement (SAS) that outlines the conclusions of a site audit, and a site audit report (SAR) that summarises the information reviewed by the auditor. For statutory site audits, a site auditor must provide a copy of the SAS to the NSW EPA and the local council.

Note: A Site Audit has a range of pre-determined purposes. Council is to define one or more of those purposes when requesting a statutory Site Audit. The purposes are:

A1 To determine land use suitability (define intended land use(s))

A2 To determine land use suitability subject to compliance with either an active or passive environmental management plan (define intended land use(s))

OR

B1 To determine the nature and extent of contamination

B2 To determine the appropriateness of an investigation plan, a remediation plan, and / or a management plan

B3 To determine the appropriateness of a site testing plan to determine if groundwater is safe and suitable for its intended use as required by the Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017

B4 To determine the compliance with an approved voluntary management proposal, or; management order under the Contaminated Land Management Act 1997

B5 To determine if the land can be made suitable for a particular use (or uses) if the site is remediated or managed in accordance with a specified plan.

8. 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 Section 59 of the CLM Act 1997 to include information provided to Council by either the NSW EPA or Accredited Site Auditors on certificates issued for the purposes of Section 10.7 of the EP&A Act 1979.

8.1 How Council's information is managed

Part 5 of the Planning Guidelines emphasises 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. To assist with this Council has a register for contaminated and potentially contaminated lands, which will be used in conjunction with this Policy. The register was primarily prepared to assist Council to address 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 10.7 of the EP&A Act.

Council's Contaminated Land Register should be accessed each time Council performs a planning function.

8.1.1 Basis for inclusion of properties in the register

The majority of the properties in the register have not been specifically assessed to determine the actual existence of contamination, but where, as a result of investigation in relation to current or former land uses information about contamination has become available it is intended that the information or reference to the information be recorded. Development of the register involved consideration of the schedule of "Activities that may cause Contamination" in Appendix A 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 EPA and Department of Primary Industries.

The list of sites in the register 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 register is neither comprehensive nor 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 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 CLM Act.

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

1. Site contamination reports submitted to Council (e.g., Preliminary Site Investigation, Detailed Investigation, Remedial Action Plans, etc).
2. Site Audit Statements received by Council.
3. NSW EPA declarations and orders issued under the CLM Act (including voluntary investigation and remediation proposals agreed by the NSW EPA).
4. Prior notification of Category 2 remediation works.
5. Notification of completion of Category 1 and Category 2 remediation work.
6. Information of which Council is aware in relation to current or former land uses or other contaminating activities such as illegal dumping or uncontrolled site filling.

8.2 Supply of information and notification of restrictions

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

1. By issuing Planning Certificates upon application and subject to payment of the prescribed fee.
2. 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).
 - a. Site investigation reports (including Preliminary Site Investigation reports, Detailed Site Investigation reports, Remedial Action Plans, Validation and Site Monitoring reports) or any other contamination assessment reports prepared by consultants.
 - b. Site Audit Reports and Site Audit Statements.
3. By providing access to documents in accordance with the LG Act 1993 & the *Government Information (Public Access) Act 2009*.

8.3 Planning certificates – prescribed information

This clause applies to the provision of information on planning certificates under Section 10.7 of the EP&A Act, as prescribed by Schedule 2 Section 10 of the EP&A Regulation 2021 and Section 59(2) of the CLM Act 1997. Council is to provide the following prescribed information:

1. 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 any of the land is affected by an adopted policy that restricts the development of the land because of the likelihood of land slip, bush fire, tidal inundation, subsidence, acid sulfate soils, contamination, aircraft noise, salinity, coastal hazards, sea level rise or another risk, other than flooding.” (Item 10(1) of Schedule 2, EP&A Regulation 2021)

2. A statement that the land to which the certificate relates is:
 - a. Significantly contaminated land within the meaning of the CLM Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued.
 - b. Subject to a management order within the meaning of the CLM Act - if it is subject to such an order at the date that the certificate is issued.
 - c. Subject of an approved voluntary management proposal within the meaning of the CLM Act - if it is subject of such an approved proposal at the date that the certificate is issued.
 - d. Is subject to an ongoing maintenance order within the meaning of the CLM Act - if it is subject to such an order at the date when the certificate is issued.

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

- e. A statement that the land to which the certificate relates is the subject of a Site Audit Statement within the meaning of the CLM Act - if a copy of such a statement has been provided at any time to the Council.

Schedule 1

Potentially contaminating activities and contaminants of concern

Industry	Type of Chemical	Associated Chemicals
Dry cleaning		Trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, perchloroethylene
Electrical		PCBs (transformers & capacitors), solvents, tin, lead, copper, mercury
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 considers being a potentially contaminating		

Schedule 2

Councils minimum requirements for consultants

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
 - 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.

Each report must contain a summary table in the format outlined below.

Property description and address	Page no.
e.g. Lot and DP, map of entire site as well as the investigation area(s)	
Conceptual Site Model	
e.g. Contamination sources, receptors and exposure pathways between sources and receptors	
Sampling and Analysis Quality Plan (SAQP)	
Justification for the sampling design (how will the data be representative and relevant)	
Frequency and pattern of sampling	
Justification for analytical plan (especially if the project uses composite samples)	
Data quality objectives	
Sampling Methodology	
Description of sample methodology	
Description of media sampled and sample depth interval (e.g. borehole logs, or soil description)	
Notable contaminant concentrations e.g. maximum specific concentrations and validation results	
Soil and groundwater concentrations and comparison against appropriate EIL, HIL, HSL and GILs etc.	
Discussion on QA/QC	
Statistical analysis	
Nature of works carried out	
e.g. soil investigation, ground water investigation, excavation, on-site remediation, removal of soil, validation sampling, backfilled with imported soil with ENM classification	
Nature and extent of residual contamination	
Contamination identified in investigation, contamination unable to be remediated within the scope of the work, or areas not assessed	
Waste removed	
During remediation (details of classification and disposal)	
Remediation Summary	
What was removed or treated? Was it successful, is residual contamination remaining? Is there a need for an ongoing Environmental Management Plan?	
Appropriately experienced and qualified practitioners	
Practitioner is appropriately experienced and qualified with adequate professional indemnity (PI) insurance for the work undertaken	
Statement of suitability	
The land is considered suitable for [residential, residential with limited soil access, open space, industrial/commercial] land use, other (describe).	
Report details	
Report title: [insert report title]	
Produced by: [insert company name]	ABN: [insert ABN]
Provided to [insert name] Council on: [insert date]	
I [insert name] of [insert company name] state that I have undertaken this assessment in accordance with the guidelines made and approved by the NSW Environment Protection Authority.	
Name: [report contact]	Signature:
Contact details: [insert email address]	[insert contact phone number]