SECTION 21 – CONTAMINATED LAND

INTRODUCTION

Pursuant to the provisions of the Environmental Planning and Assessment (EP&A) Act 1979, Local Government Act 1993, Contaminated Land Management Act 1997, and the Contaminated Land Management Regulation 1998, Council has a duty of care when considering Development Applications, to consider fully the possibility of land contamination and the implications it has for any proposed future use of land.

In recognition of its duty of care, Muswellbrook Shire Council will adopt a precautionary approach to its consideration of applications involving contaminated or potentially contaminated land. The object of this approach is to enable any land contamination issues to be identified and dealt with at an early stage in the planning process.

The processes of identifying, evaluating and remediating contaminated land are documented in the *Managing Land Contamination: Planning Guidelines SEPP 55* developed by the Department of Urban Affairs & Planning and the Environment Protection Authority in 1998; and the *National Environment Protection (Assessment of Site Contamination) Measure* 1999. Council considers these guidelines to be a mandatory reference for consultants assessing contamination levels and undertaking remediation exercises.

Council views contamination as a subset of general pollution and will seek, in its assessment and determination of all applications, to ensure the continued compatibility of all development by minimising the potential for polluting discharges, fugitive emissions and controlled spillages by appropriate site management techniques. It is incumbent upon all developers to design and manage their sites in a manner consistent with this objective.

It does not follow that adherence to Council's policy and procedure alone is sufficient to ensure approval of an application for the rezoning or development of contaminated land. Council will consider each and every application on its merits having particular regard for the circumstances of each individual case.

OBJECTIVES & CONTROLS

Objectives:

- Ensure that the potential for the contamination of land is considered in the planning and development process;
- Ensure that strategic planning and development decisions appreciate matters relating to the potential for previous land uses to contaminate land;
- Ensure that the Council exercises its functions relating to land development with all reasonable care and due diligence;
- Ensure that the development of contaminated land does not result in unacceptable levels of risk to public health or the environment;
- Ensure that site investigations are undertaken in a satisfactory manner in accordance with appropriate legislation, regulations, guidelines and standards;
- Ensure that the community is not negatively impacted through increased health and environmental risks from land contamination issues.

Controls:

(i) Identification of previous land uses which may have caused potential contamination risks to land
(ii) Identification of potential pollutants which may have contaminated land
(iii) Assessment of site specific contamination relevant to the redevelopment or rezoning of land and appropriate proposed land uses
(iv) Investigation and assessment of contamination in accordance with appropriate legislation, regulations, guidelines and standards
(v) Remediation of contaminated land to a standard appropriate for the proposed land use
(vi) Identification of potential off site impacts associated with land contamination
(vii) Notification of significant risk of harm to the Department of Environment & Climate Change if required.

21.1 WHAT IS CONTAMINATION?

Contamination can result from a number of past and/or present land use activities which may include, but are not restricted to:

- The controlled or uncontrolled disposal of wastes, including sewerage or trade wastes;
- Accidental leakage;
- Leakage during plant operation, storage or transportation of raw materials, finished products or wastes;
- The inappropriate storage or handling of substances.

Appendix 1 provides a quick reference guide to some potentially contaminating activities. This list should be consulted as part of the initial enquiry process undertaken prior to the lodgement of an application with Council.

Council has developed a set of procedures to be followed for rezoning proposals and for Development Applications (DA's) to assess the potential of site contamination. These procedures allow for a merit based consideration of land contamination issues, that is in considering the implications of contamination, Council will have regard for the sensitivity of a proposed land use in addition to any technical standards or requirements published by the NSW Environment Protection Authority (EPA), the Australian and New Zealand Environment Conservation Council (ANZECC), the National Environment Protection Council (NEPC), the National Health and Medical Research Council (NH&MRC) or any other relevant authority.

21.2 DUTY TO REPORT

The Contaminated Land Management Act 1997 requires individuals to notify the Department of Environment & Climate Change (DECC) if they become aware that their activities have contaminated land so as to present a significant risk of harm to public health or the environment.

The Act also requires landowners to notify the Department of Environment & Climate Change (DECC) if they become aware that their land has been contaminated so as to present a significant risk of harm to public health or the environment. This requirement applies to all property owners whether the contamination occurred prior to or after the landholders ownership of the property.

Any notification of significant risk of harm to the DECC must be done as soon as practicable after becoming aware of the potential for significant risk of harm. This notification must be undertaken in accordance with the Contaminated Land Management Act 1997.

To assess the risk to public health or the environment associated with contamination, the land owner and/ or persons who have caused the contamination should consult with the *Guidelines on Significant Risk of Harm from Contaminated Land and the Duty to Report* developed by the NSW Environment Protection Authority (EPA).

21.3 PROCEDURAL PRINCIPLES

There are 4 main stages in the assessment of contamination associated with the development contaminated land, as detailed by the *Managing Land Contamination: Planning Guidelines SEPP 55*.

At each stage it is the applicant's responsibility to provide the necessary documentation to Council and to fund the work required to prepare such documents. If Council is unsatisfied with the procedure or findings of a report it may choose to obtain an independent review of the investigation and reports completed, which would also be at the cost of the applicant or property owner.

The stages are as follows:

- **Stage 1 Preliminary Investigation** - This stage involves an investigation and reporting of the site history and is typically based on readily available information such as historical record of land use, aerial photographs and consultations with previous occupants and relevant authorities.

  At this stage some initial sampling and analysis may need to be undertaken by a suitably qualified environmental consultant and in accordance with the ANZECC/NH&MRC guidelines.

- **Stage 2 Detailed Investigation** - Should the initial investigations indicate that further assessment is required or if in the opinion of Council it fails to clearly demonstrate that the land is suitable for its proposed use, a detailed assessment and evaluation is to be submitted.

  The detailed investigation stage is required to provide information regarding the extent and degree of contamination. This detailed evaluation stage involves formal sampling by a suitably qualified environmental consultant in accordance with the ANZECC/NH&MRC guidelines. Typically, a site specific work plan is developed during this stage, based on previous investigations.

- **Stage 3 Site Remediation** – The remediation of the site must be managed through the completion of a Plan of Remediation or Remediation Action Plan (RAP). This RAP must detail the proposed method of remediation, the reason for remediation and final goals of remediation.

  The basis of site remediation is to select a socially acceptable and cost effective management strategy which mitigates threats to, and provides protection for public health and the environment as well as allowing flexibility in the future use of the

land. This process is facilitated by selecting appropriate criteria which is recognised as being a suitable level of contamination for the proposed land use.

Once a clean-up technique or management strategy has been chosen and used, validation of the clean-up must take place to ensure that the measures taken are adequate for the protection of local amenity, public health and the environment

- **Stage 4 Validation and Monitoring –** The purpose of validation is to confirm that the remediation process has achieved the objectives and goals of the Remediation Action Plan (RAP) and has remediated the land to a level suitable to the proposed land use.

  The validation of a site must be undertaken and reported on by a suitably qualified consultant who has managed the site investigation and remediation process. The consultant should follow the relevant EPA guidelines when validating a site.

  Ongoing monitoring of contaminated sites may also be required to ensure that any identified pollutants are not permitted to migrate from the site. Any proposal for ongoing monitoring must be detailed in the RAP completed for the remediation of the site or the final validation report, and must also include a legal agreement from the property owner that this monitoring will be undertaken.

Council requires the submission of a preliminary investigation report (including site history information and documentation of known or potential sources of contamination) at the following stages:

- **Rezoning Applications** - with initial Rezoning Application to Council; and
- **Development Applications** - where a change of land use is proposed or where the subject or immediately adjacent land is suspected of contamination (consideration will be given to contamination at the DA stage).

Subsequent stages of the SEPP 55 Guidelines and/ or Council's policy will not apply in cases where:

- A preliminary investigation report clearly and unequivocally demonstrates, in the opinion of Council, that the contamination of the subject land and its surrounds has not occurred and/ or;
- The subject land has previously been remediated to an appropriate standard acceptable to Council for the proposed land use.

At any time throughout the assessment process of an application for potentially contaminated land, Council may request a separate independent audit review of work or conclusions drawn by an applicant's consultant. Should an independent review be required the cost of that review is to be met entirely by the applicant. Although paid for by the applicant, the independent consultant is engaged by Council and must report direct to Council.

Council requires that an independent consultant be suitably insured and be accredited under relevant New South Wales legislation.

Where a detailed site evaluation indicates that the level of contamination on a particular site is high, Council may require the applicant, developer and/or landowner (or future landowners) to provide indemnification to Council that he/she or they, will at all times, comply with any conditions of development approval relating to the remediation,

control, monitoring, inspection, reporting and maintenance of the land contamination. This may be in its applicable state at the time of development approval or in a residual state following remediation works, as the case may be. Such indemnification will be prepared at the applicants cost.

21.4 PROCEDURES FOR DEVELOPMENT APPLICATIONS

Development Applications which propose a change of land use or are the subject of or immediately adjacent to land which is potentially contaminated, will be assessed as per the procedures detailed by this Section of the DCP.

The key requirements of this procedure are:

- The submission, by the applicant, of a preliminary investigation report (see 21.3) at the time of lodgement of the application with Council.
- Should Council's assessment of the initial identification report indicate the need for further information or investigation, Council may call for additional sampling and/or justification to be submitted, at the applicant's cost.
- Where it has not been clearly demonstrated that land is suitable for its proposed use in its present state, Council will require the submission of a detailed site investigation report (see 21.3).
- Where land is found to be free of contamination or where, in Council's opinion, the extent of contamination does not pose a threat to human health or the environment, Council may proceed to determine the application without reference to clean-up standards or remediation requirements.
- If the land is found to be contaminated, details of an appropriate remediation action plan (RAP) are to be submitted for the consideration of Council or where remediation is not practical the application shall be refused.
- If Council is uncertain about the findings of a preliminary investigation report or a detailed site investigation, it may require an independent assessment of work undertaken, as documented in 21.3 of this Section of the DCP.
- Depending on the degree of contamination, and the remediation strategy proposed, Council may decide to issue a deferred commencement consent or require indemnification from the developer or landowner that they will develop, maintain and monitor the land as required by the terms of any consent.
- Council will require any necessary remediation to be validated by an independent environmental consultant.

> Information pertaining to land contamination which has been submitted as part of any relevant rezoning application may be sufficient to satisfy some of the requirements of this policy for DA's.
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> It is incumbent upon an application to demonstrate to Council that previous investigations, and/or remediation strategy/works, carried out at any stage in the land development process, satisfy the provisions of this policy.

21.5 PROCEDURES FOR REZONING APPLICATIONS

Please refer to Council's Requests for Rezoning Process Outline and SEPP 55 Planning Guidelines – Remediation of Land for further information.

21.6 DEFINITIONS

Contaminated land means land in, on or under which any substance is present at a concentration above that naturally present in, on or under the land and poses, or likely to pose, an immediate or long term risk to human health or the environment. (EP&A Act 1979 (145A)).

Deferred Commencement Consent

Fugitive Emission are emissions which are permitted to enter the environment without controls to restrict their discharge.

Indemnification

Investigation Level means the concentration of a contaminant above which will require additional appropriate investigation and assessment.

Land Use refers to the activities undertaken at a site which may influence the status of the property and the potential for contamination to occur.

Precautionary Approach means that if research or supporting information such as analysis or modelling is unavailable then no action is to be undertaken until this information is obtained in support of the activity.

Remediation refers to the removal, mitigation or hazard elimination of contaminants relevant to a site which is considered to be contaminated.

Remediation Action Plan (RAP) is a plan which sets remediation goals and records the process of remediation regarding a site.

Validation is the process of determining whether the objectives for remediation and any conditions of consent have been achieved.

APPENDIX 1

SOME POTENTIALLY CONTAMINATING ACTIVITIES AND MAIN CONTAMINANTS

Agriculture/ horticulture - Land heavily treated with persistent chemicals such as arsenic and organochlorine based chemicals (eg. Banana plantations, cotton and sugar cane fields, local orchards and horticulture plantations and market gardens), and organophosphate-based chemicals.

Airports - Hydrocarbons (fuels and organic solvents), oils and heavy metals.

Asbestos production and disposal - Asbestos based waste such as asbestos tailings (usually contains 2% asbestos from asbestos mines).

Battery manufacture and recycling – lead, manganese, zinc, cadmium, nickel, cobalt, mercury, silver, antimony, sulfuric acid.

Chemical and Petrochemical Works - A variety of contaminants from the production, recovery and storage of organic and inorganic chemicals including petrochemicals (eg. Tar and bitumen); solvents such as chloroform, trichloroethylene and tetrachloroethylene from dry cleaning establishments; fertilisers, pesticides, pharmaceuticals, soaps and detergents, dyestuffs, inks and paints, acids and bases, asbestos).

Concrete and Brick Industry - In areas with clay deposits, open cuts were created from the extractive activities. These open cuts which could reach a depth of up to 10 metres, were progressively filled with waste and in particular industrial waste.

Docks and railway land, especially large sidings and depots - Oils and hydrocarbons (including polyaromatics such as PAHs, diesel fraction), volatile chlorinated hydrocarbons (such as VOC's), heavy metals (copper, lead, mercury, chromium and zinc), and paints, arsenic, herbicides and asbestos.

Drum reconditioning – chemicals such as solvents, paints, dyes and oils.

Gasworks, other local carbonisation plants and ancillary by products works - Hydrocarbons such as naphtha, especially aromatic hydrocarbons such as PAHs, coal tar derivatives, phenolics, "spent oxide" (iron or calcium oxides containing high concentrations of free sulphur, sulphides, sulphates), cyanides (free and complex), and asbestos.

Heavy engineering installations, eg. Shipbuilding, car manufacturing, electrical and electronic manufacturing - heavy metals, oxides, antifouling paints (copper and tributyl tin based), lead, asbestos.

Installations involving the processing, use or disposal of radioactive materials - Cobalt (eg. Gamma sterilisation and medical therapy), strontium, cesium and radium (eg. Research and medical applications), uranium (eg. Research), thorium (eg. Industrial processing of mineral sands), plutonium and tritium isotopes and others.

Landfills and other waste disposal and storage sites including transfer stations - Putrescible waste (eg. Food waste), paper, glass, plastics, metals and other materials

generated mainly by householders and dumped into municipal landfills; bacteriological contaminants (eg. Infectious waste) and cytotoxic chemicals from clinical waste, pesticides from contaminated drums, ash containing heavy metals from coal fired power stations or other incinerators, aluminium and iron from water treatment residuals, heavy metal based waste from mining activities and liquid waste such as solvents, generated mainly by industry - in controlled and/or secured landfills.

Metal/metallurgical Industry - eg. Refining or recovery of metals, electroplating and metal finishing - Phosphates, nitrates, nitrites, sulphates, heavy metals (cadmium, chromium, copper, lead, nickel, zinc, cobalt, etc.) and cyanides (from alkali cleaning), aromatic compounds such as benzene, toluene, xylenes, styrene and chlorinated hydrocarbons (from solvent cleaning and paint removal), polycyclic aromatic hydrocarbons (PAH's) (from colouring and bituminising agents), PCBs and mineral oils, asbestos and beryllium.

Metal Mines - Acids, cyanides and heavy metals such as cadmium, copper and zinc from mine tailings and processing plants, asbestos and sulphates.

Mining and Extractive Industries - eg. Handling and storage or ores and carbonaceous materials. Also hydrocarbon materials from fuel storage and handling.

Munition Production and Testing Sites - Mercury and lead based compounds, RDX, sulphur, nitrates (organic and inorganic), TNT, detonating devices and others.

Oil Refineries, Petroleum Storage and Distribution - Petroleum hydrocarbons and lead from oil refineries, petrol stations, above and underground storage tanks and distribution sites.

Paper and Printing Works - Ash, hydroxides, peroxides, acids, foaming agents, chelating agents, (eg. DTPA), dyes.

Pesticide storage areas - areas where vehicles used for the transport and storage of pesticides are washed and areas where tanks are used to store pesticides - Insecticides, fungicides and herbicides.

Power Stations - Polychlorinated biphenyls (PCBs), ash (heavy metals), asbestos.

Scrap yards - Heavy metals, residues from drums including chlorinated hydrocarbon solvents.

Smelters, Foundries, Iron and Steel Works - Lead, copper, zinc, cadmium, mercury, aluminium, fluorides and acid from smelters and foundry operations, PAHs (Poly Aromatic Hydrocarbons), cyanides, heavy metals and benzene, toluene and xylene (BTX), ethyl benzene, asbestos, naphthalene, tars and ammonium sulphate, from steel works.

Stock dipping - eg. Activities on cattle tick and sheep dip sites - Chemicals (mainly tickicides) disposed of in the 1960s and 1970s such as DDT, arsenic, BHC, delnev, carbaryl and ethion; current chemicals in use (eg. Tactic, arnitraz, cypermethrin, bendiocarb, deltamethrin, flumethrin, bayticol, diazinon, chlorfenvinfos and barricade 's').

Tanneries - Materials derived from the hides and skins such as grease and dung; chemicals used in the preservation and tanning process such as sulphate, lime, sulphide, hydroxides, chlorides and arsenic based compounds for pre-treatment, tannins, sulphites and chromium salts for tanning.

Termite/ant control - Where substantial areas of soil may be contaminated with organochlorine residues (eg. Dieldrin, heptachlor, chlordane).

Timber Treatment Works - Creosote, polycyclic hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), copper, chromium, arsenic, boron and pentachlorophenel (PCP) from industries using or making wood preservatives and other organochlorines.

NB:	**It is not sufficient to rely solely on this list to determine whether a site is likely to be contaminated or not. The list is a guide only.**

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