



ENVIRONMENTAL SITE ASSESSMENTS

What is an ESA?

The phrase ‘Environmental Site Assessment’ (ESA) has come to mean the formal evaluation of an area of land with respect to environmental contamination – and specifically to the chemical contamination of soil and groundwater. This evaluation may include an assessment of the potential impact of contaminant migration from the investigated area to adjacent areas, surrounding air, surface water and groundwater resources.

When is an ESA required?

Frequently, an ESA is commissioned when contamination of a site has become all too obvious, and the main questions asked are: ‘Is it feasible to clean up this site, and how much will it cost?’

ESAs are also commonly carried out as a routine procedure, however. For example, an ESA is often commissioned in one of the following circumstances:

- As a pre-acquisition or pre-sale assessment, on behalf of either purchaser or vendor, when a property is being sold. Such assessments can be considered analogous to the title and planning searches carried out as a routine part of the conveyancing process.
- As a pre-development assessment, when a property is to be redeveloped or is to have its usage changed - for example, from a factory to a residential subdivision.
- As a pre-development assessment of a greenfield site, to establish baseline conditions and assess environmental, geological and hydrological constraints to development. An example would be an assessment of waste disposal constraints on rural subdivisions.
- As an audit of the environmental effects of an ongoing operation, to ensure sound environmental practice and regulatory compliance.

Who may require an ESA?

Anyone involved in land transactions should consider the benefits of an ESA. Anyone buying or selling land should consider the possibility that it may be contaminated. The financial risks are significant.

Vendors may be liable for misleading statements made to potential purchasers; owners or lenders may be liable for the activities of occupiers. Although the financial risks associated with land contamination cannot be eliminated, they can be managed, and one of the best management tools available is the Environmental Site Assessment.

Many organisations, including lending institutions, banks and finance houses (particularly those who have previously been exposed to environmental liability in the USA), now routinely commission ESAs for all major land purchases.

Planning authorities (generally local councils) require an environmental assessment to be completed before considering rezoning applications that seek approval for a more sensitive land use. For example, a developer might intend to put a housing estate on land that was once occupied by factories.

Who should undertake your ESA?

Your ESA should be undertaken by a skilled and experienced specialist, who understands the risks involved, and who can clearly communicate the results to you. It is important that the appropriate experience extends beyond the directors in the office – to the professional staff who will actually see your site.

What CMJA can offer you

CMJA has completed over 300 ESAs, ranging from assessments for property transfer of small blocks of land, to three of the largest such assessments undertaken in Australia. We offer a personal service that includes a site reconnaissance undertaken by senior professionals, modern instrumentation, quality assurance/quality control procedures to international standards, analysis in NATA-registered laboratories, and a very high standard of reporting.

What is involved?

We prefer to undertake ESAs as staged studies, comprising up to three stages.

Stage 1A

Stage 1A typically involves a review of the site's history, and includes the following work.

- We assess available topographical and geological mapping, and current and historical aerial photographs.
- We review relevant published geological, geotechnical and hydrogeological information.
- We compile information about the site's ownership history, and the nature of activities previously undertaken on the site.
- We interview the current and, where possible, the previous owners and occupiers of the site, to assess environmental management practices, and to identify the location of particular activities on the site.
- We review the site's development and regulatory history, with particular attention to development applications, discharge licences, compliance notices and orders imposed under the Contaminated Land Management Act (1997) and Protection of the Environment (Operations) Act (1997), and under previous legislation such as the Environmentally Hazardous Chemicals Act (1985), the Public Health Act (1991) and the Unhealthy Building Land Act (1990).
- We assess the status of adjacent land, and its potential impact on the site.

Stage 1B

Stage 1B is usually undertaken concurrently with Stage 1A, and involves a site reconnaissance by an experienced assessor. This comprises a walk-over and visual observations, supplemented with photography and on-site instrumental measurements.

Stage 2

Stage 2 is carried out only if warranted by the results of Stage 1. Investigations involve sampling and analysis of site materials in order to establish levels of contamination. Stage 1 results will dictate to a large extent, the specifics of Stage 2: the number of samples, their location, their depths and the recommended analytical suites.

Stage 3

The final stage of the process involves the preparation of a Remedial Action Plan (RAP) summarising the investigations undertaken for the site, and providing recommendations and a detailed remedial action plan for site clean-up.

We believe that this staged approach to ESAs is the most effective, and offers better value for money. We keep our clients informed at each stage, and we provide an assessment completed to high technical standards.

Some interesting ESAs that we have been involved with are outlined below.

Contaminated Site Assessment, Bimbimbie, South Coast, NSW

The Eurobodalla Shire Council, asked us to assess possible contamination of land earmarked for a fire-training complex. The site was formerly part of a timber treatment impregnation facility that operated for some 23 years. Possible contaminants of concern included copper, chromium, and arsenic (CCA) salts, oil-based creosote, total petroleum hydrocarbons (TPH), and polycyclic aromatic hydrocarbons (PAH).

CMJA conducted a detailed background site study. We reviewed historical records, interviewed long-term staff, and reviewed geological and topographic mapping, aerial photography and other relevant data. On-site fieldwork included assessment of the potential for dust generation and ground disturbance during construction and ongoing use of the site, in conjunction with the collection and analysis of approximately 30 soil, sediment and water samples.

On the basis of the review of historical and background data, and the on-site fieldwork, CMJA concluded that the land was suitable for use as a fire-training complex.

Former Ferrous Foundry, Green Square Gardens

CMJA was commissioned to undertake an ESA of an inner-city property that had been used as a ferrous foundry. Investigations at the property had identified several areas of concern, on both the site and the adjacent property, including the migration of diesel and solvents from a number of underground storage tanks that had been in use during the site's 60-year history. The site and adjacent property had been significantly impacted by TPH and PAH contaminants, which had migrated within the shallow water table evident in the area.

After the investigation, CMJA developed and implemented a remedial action plan for the site, involving the excavation, classification and off-site disposal of up to 13,000 tonnes of material impacted by lead, TPH and PAH. Further material was left in situ following discussions with the Auditor appointed for the site. This remediation has now been successfully completed, and a Site Audit Statement issued.

Environmental Site Assessment, Tahmoor, Southern Highlands, NSW

Precision Planning commissioned us to assess the potential for soil and/or groundwater contamination at a site in Tahmoor, previously occupied by a service station. This information was to assist with a development application for a new shopping centre facility.

Stage 1 of the investigation comprised a review of historical and relevant site information, and a site visit. During the site visit selected soil samples were screened for volatile organic compounds (VOC), and some selective excavation was carried out to assess where contamination was likely to have occurred. We identified the strong likelihood of contamination on the site given its previous usage as a fuel service station. Stage 2 works were therefore conducted to investigate potential sub-surface and groundwater contamination at the site. Soil samples were collected and analysed as recommended by the NSW EPA's Guidelines for Assessing Service Station Sites (1994).

The investigation found that much of the soil on site was contaminated with TPH and benzene, toluene, ethylbenzene and xylenes (BTEX), but that the limited extent of contamination made it possible to excavate and dispose of the soil in appropriate landfills. Soils in those areas found to be more highly contaminated were recommended for bio-remediation by on-site landfarming techniques prior to disposal at suitable landfills. These recommendations have since been implemented by the developers, and the site successfully transformed into a shopping centre.