



# Managing urban development in acid sulfate soil areas

Development in areas of high to moderate acid sulfate soil (ASS) risk must be managed appropriately to minimise disturbance and potential damage to the environment.

Disturbance of ASS should be avoided wherever possible – if disturbed, the management of ASS will **always** increase the cost of development.

Site characteristics and local knowledge may indicate the presence of ASS and developers should also consult ASS risk maps which are available at <http://dec.wa.gov.au/ass>

## When planning a development

If you are about to develop land in an area of high to moderate ASS risk you need to ask the following questions:

**Are any dewatering or drainage works proposed?**

**Are you excavating more than 100 cubic metres of soil?**

If **YES** an ASS site investigation is required.

Investigating ASS sites is often a complex process requiring the assistance of a suitably qualified environmental professional. Advice on how to engage a qualified consultant can be found in the fact sheet "How to hire a contaminated site consultant or an Accredited Auditor" at <http://www.dec.wa.gov.au/contaminatedsites>

Your ASS investigation is a four step process based on DEC's guideline *Identification and Investigation of Acid Sulfate Soils* (2006) which can be found at <http://www.dec.wa.gov.au/ass>

**Step 1 – Desktop assessment & site inspection** – identifies the likelihood of ASS in a proposed development area and pinpoints locations for soil sampling.



**Step 2 – Soil sampling** – determines ASS presence based on site characteristics and soil lithology from bore holes or test pits.



**Step 3 – Laboratory analysis** – confirms field screening tests and determines required neutralising rates.



**Step 4 – Reporting** – summarises field observations, screening tests and laboratory results for assessment by DEC. An ASS Management Plan (ASSMP) is required when the proposed development has the potential to disturb ASS.



## ASS Management Plan

The ASSMP must address the following issues:

**Potential environmental impacts** – groundwater drawdown, disruption to existing bore users, vegetation stress, reduction in water quality, noise and air impacts.

**Earthwork strategy** – soil extraction methods, stockpile management, soil treatment/neutralisation, calculated liming rate and disposal techniques.

**Dewatering strategy** – procedure and control measures, treatment and disposal options, contingency measures if acidification of groundwater occurs.

**Monitoring program** – soil, groundwater, vegetation, noise and air.

**A closure report must be submitted to DEC at completion of site works**

### Preferred management strategies

- Avoidance – planning to avoid disturbing ASS in high to moderate risk areas.
- If disturbance is unavoidable preferred strategies are:
  1. **Minimise disturbance** – redesign earthworks, drainage and sewer layout to avoid ASS disturbance.
  2. **Neutralise** – add neutralising agents such as aglime or other approved neutralising materials.
  3. **Hydraulic separation** – pyrite can be removed by hydraulic separation followed by appropriate treatment and management.
  4. **Strategic reburial** – potential ASS (PASS) can be placed in an anoxic (devoid of oxygen) environment.
- Adopt best management practice at all times.
- Consider onsite and offsite management of disturbed ASS and potential contaminated waters.

### More information

More detailed information and advice is available by going to <http://www.dec.wa.gov.au/ass>

DEC has published a series of fact sheets and guidelines to assist with the identification, investigation and management of ASS in Western Australia. Further information is available by mail from the address below or by calling the Acid Sulfate Soils section on 1300 762 982.

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