

# Managing soil disturbance



Environment  
Protection  
Authority Victoria



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Guidance sheet

## How to eliminate or reduce the risk of harm from erosion, sediment and dust

### Description

Soil disturbance exposes the soil and increases risk of wind and water erosion, resulting in impacts to the environment.

Soil disturbance can occur through many activities across various industries. Soil disturbing activities may include:

- earthworks
- landscaping
- land preparation
- land stripping
- soil cultivation
- grazing
- constructing embankments
- installing underground services
- pit excavations
- road and drainage development
- timber harvesting
- quarrying and mining
- use of haul roads.

### Step one: identify hazards

Common hazards associated with soil disturbance include:

- increased erosion, and sediment release into waterways and riparian areas
- unstable or degraded land surfaces
- decreased soil productivity/ability to support plant growth (this can make erosion worse)
- adversely affecting hydrologic function of soil (for example natural infiltration and drainage)
- uncontrolled generation of dust.

### More information

See our website: [epa.vic.gov.au/for-business/find-a-topic/erosion-and-sediment/advice-for-businesses](https://epa.vic.gov.au/for-business/find-a-topic/erosion-and-sediment/advice-for-businesses)

Contact us:  
**1300 372 842 (1300 EPA VIC)** or  
[contact@epa.vic.gov.au](mailto:contact@epa.vic.gov.au)

The actions you take and the controls you decide to implement will support you to comply with your general environmental duty and other duties under the *Environment Protection Act 2017*.



The steps in this guidance sheet follow the risk management process described on our website (see [How to manage environmental risk](#)).



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## Step two: assess risks

To help assess the risk and impacts from soil disturbance, you can:

- consider the size, scale, and location of the proposed works
- understand the physical properties and soil characteristics of the disturbed area. Different soil types have varying:
  - levels of resistance to erosion
  - potential to generate sediment-laden runoff in wet conditions
  - potential to generate dust in dry conditions.
- understand the soil profile and structure on slopes
- determine how much soil needs to be disturbed
- consider the extent of vegetation removal required
- consider staging activities that will disturb the soil
- consider how you will protect waterways, catchments and associated vegetation
- understand the drainage profile and where surface runoff will flow during rainfall events (for example surface runoff flowing into local stormwater drains or nearby waterways)
- understand the loading impacts of mobile equipment and vehicles on soils and embankments
- consider potential impacts to nearby sensitive receivers including aquatic ecosystems and riparian habitat.

## Step three: implement controls

Consider using the following controls, appropriate for your activities, to limit the impacts of soil disturbance where you work:

- Avoid clearing areas that don't need to be disturbed.
- Minimise vegetation disturbance.
- Stage soil work to minimise areas of exposure.
- Plan and schedule soil disturbance activities and consider adverse weather conditions (for example hot, dry or wet periods, high winds, heavy rainfall events and days with poor air quality).
- Conduct regular meteorological monitoring (for example wind conditions and rainfall) and be flexible and adjust your work plan or reschedule as necessary. For example, wherever possible,

plan topsoil stripping and grading on days when wind conditions are less likely to carry dust towards sensitive areas. Also, stop works if dust from your site is visible beyond the site boundaries and moving towards sensitive receivers. Resume works only when you can implement effective controls or weather conditions and air quality improve.

- Divert clean surface water away from disturbed soil where possible.
- Install shade cloths as a windbreak to slow down winds and minimise wind erosion (wind-blown dust).
- Install dust screens around the site as appropriate.
- Wind barriers (for example solid board fences, crate walls, bales of hay, burlap fences and trees) help with preventing erosion by obstructing the wind near the ground and in turn, prevent soil from being blown off site. Wind barriers are most effective when placed perpendicular to the prevailing wind.
- Suppress dust by using water carts to wet down areas where works are happening, including outside business hours if windy weather is forecast.
- Stabilise exposed soils for example, revegetating soils (e.g. hydroseeding, hydromulching) by applying spray suppressants or soil binders, or installing stabilisation matting.
- Suppress dust using misting or fogging systems.
- Stabilise vehicle movement areas to prevent tracking of sediment or generation of dust.
- Avoid driving over stabilised or exposed soil.
- Install a sediment or silt fence to stop silt and sediment runoff from leaving your work area.



**Figure 1.** Water cart applying a soil binder/tackifier. (Photo courtesy of McConnell Dowell.)

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Additional control options to consider when activities disturb soil are in:

- [Managing stockpiles](#) (publication 1895).
- [Managing truck and other vehicle movement](#) (publication 1897).
- [Working within or adjacent to waterways](#) (publication 1896).

## Step four: check controls

Monitor controls you put in place to ensure they operate effectively and as planned. To manage soil disturbance, this could include:

- regularly perform maintenance and reinforcement as required of installed controls, for example replanting failed vegetation or applying further application of soil binders
- monitoring revegetated or stabilised areas to assess effectiveness of controls
- inspecting controls following high rainfall and/or high wind events to confirm if any reinforcing or re-establishment is required
- regularly reassessing the need to clear vegetation for activities and staging clearance where required

- monitor air quality for dust by using ambient dust monitoring equipment located on and off site. This will assist with identifying the effectiveness of implemented dust controls. For example, you can monitor dust from your site's activities by using dust deposition monitors or video cameras at the downwind boundary. Portable gauges located downwind such as a DustTrak unit can send real-time data for dust and weather conditions. This includes temperature, rain, wind speed and direction.



**Figure 2.** Slope stabilisation works.  
(Photo courtesy of Regional Roads Victoria.)

## For further reading and reference

[International Erosion Control Association Australasia](#) – information and resources on erosion and sediment control.



These are *examples or options only* of what you could put in place to eliminate or reduce the risk of harm to human health and the environment. You can implement other controls, so long as you can demonstrate you have eliminated or reduced the risk of harm as far as [reasonably practicable](#) (EPA website).

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## Glossary

### Hydroseeding

Hydroseeding involves spraying a slurry of water, seed, fertiliser and binder/tackifier onto an area to be vegetated using a hydroseeder.

### Hydromulching

Hydromulch is a slurry of water and organic fibrous materials, such as paper, wood pulp, wood fibre, straw fibre or milled cane fibre, sprayed onto soil using a hydroseeder.

### Sensitive receivers

Sensitive areas or species from a human or environmental context which include, but are not limited to, the following:

- social surroundings (houses, hospitals, schools, playgrounds, public amenities)
- waterways, streams, source of drinking water for people or livestock
- parks and recreational areas
- area of public interest and cultural significance
- land or water with identified flora, fauna, vegetation, ecosystem or environmental value.

## Disclaimer

The information in this publication is for general guidance only. It does not constitute legal or other professional advice and should not be relied on as a statement of the law. Because it is intended only as a general guide, it may contain generalisations. You should obtain professional advice if you have any specific concern. EPA Victoria has made every reasonable effort to provide current and accurate information, but does not make any guarantees regarding the accuracy, currency or completeness of the information.

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