# Sediment control

**Sediment control practices are used on building sites to prevent sand, soil, cement and other building materials from reaching waterways. Even a small amount of pollution from a site can cause significant environmental damage by killing aquatic life, silting up streams and blocking stormwater pipes.**

Sediment Control usually requires little effort and results in:

> Cleaner waterways and healthier aquatic life

> Reduced clean-up costs to the community

> Improved site conditions

> Improved wet weather working conditions

> Reduced wet weather construction delays

> Reduced losses from material stockpiles

> Fewer mud and dust problems

> Fewer public complaints and less chance of fines

## COUNCIL REGULATIONS

Most local councils have guidelines on sediment control. Ask them for information.

A sediment control management plan may need to be submitted to Council for approval prior to work commencing. This should address the location, design, scheduling and maintenance of sediment control measures and details of site rehabilitation.

The need for sediment control is influenced by:

Soil type. Clay soils are more likely to cause environmental harm, while sandy soils are more likely to cause traffic hazards and drainage problems. Exposed subsoils generally cause more problems than exposed topsoils.

Slope. The steeper and longer the slope, the greater the potential for erosion and sedimentation.

Extent, nature and duration of the soil disturbance. The greater the disturbance, the greater the risk of erosion and sedimentation.

Climate and season. Rainfall (intensity and duration) and high winds will influence erosion and sedimentation.

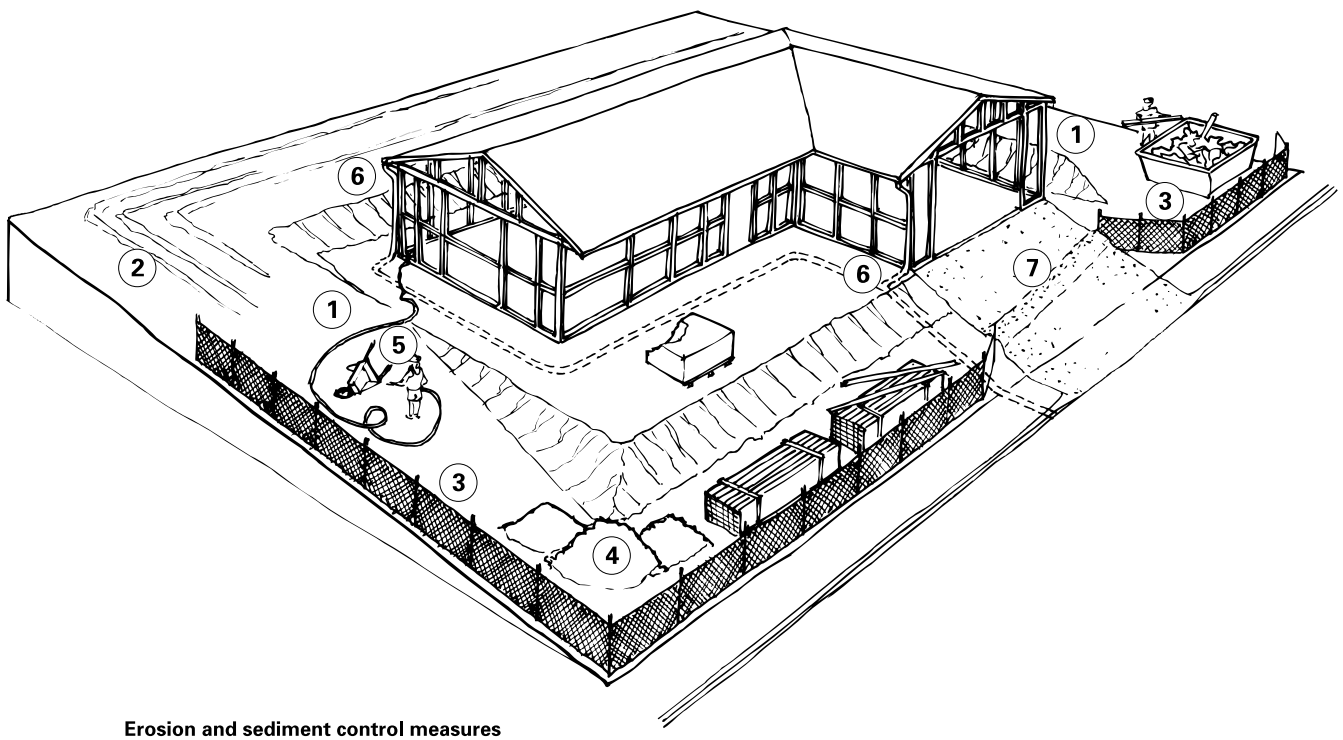
Size and location of the site. Sediment control on small sites is often harder to implement, especially if the slope is towards the street. Consult your local Council. Large vegetated rural sites may not always require specific controls.

The objectives of sediment control are:

To divert uncontaminated water away from the site.

To minimise erosion by minimising site disturbance, stabilising disturbed surfaces and securing material stockpiles.

To prevent sediment contaminated water leaving the site.




**Erosion and sediment control measures**

1 Minimise disturbance
2 Diversion devices
3 Sediment barriers
4 Secure stockpiles
5 Other containments
6 Early stormwater connection
7 Controlled access point

## MINIMISING SITE DISTURBANCE

Prevention is better than cure. Careful design and an efficient construction sequence will minimise disturbance to the site. This will save money and reduce environmental impact.


Design to avoid excessive cut and fill, unnecessary clearing of vegetation and to preserve existing site drainage patterns. Clear only those areas necessary for building work to occur. [See: Choosing a Site]

Preserve grassed areas and vegetation where possible. This helps filter sediment from stormwater run off before it reaches the drainage system and stops rain turning exposed soil into mud.

Delay removing vegetation or commencing earthworks until just before building activities start. Avoid building activities that involve soil disturbance during periods of expected heavy or lengthy rainfall.

## HOW TO IMPLEMENT SEDIMENT CONTROL

Install sediment control measures before commencing any excavation or earth moving. Regularly maintain them until construction is complete and the site is stabilised.

Three important steps to take are:

### 1. Divert uncontaminated stormwater away from the work area

Avoid contamination of stormwater with sediment. Use diversion devices to reduce the volume of stormwater reaching the disturbed area.

On compact urban sites avoid overland flow through the work area by installing the final stormwater drainage system as early as possible in the construction process. Before installation of the final stormwater system, install an up-slope perimeter bank and catch drain connected to a temporary drop pipe, to take uncontaminated stormwater directly to the stormwater system. On steep sites, line catch drains with turf or geotextile fabric.

On larger sites a diversion channel may be used to divert uncontaminated stormwater around the disturbed area. Construct the channel uphill of the disturbed area with a bank on the lower side. Regularly remove sediment from the channel.

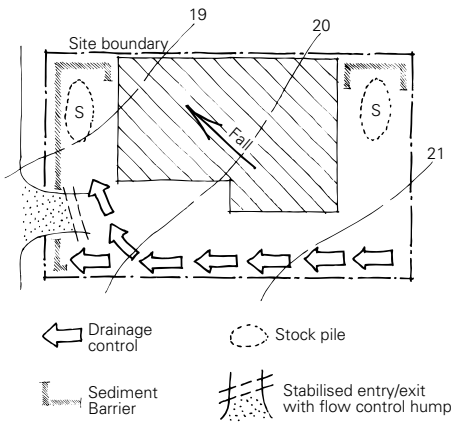
Line the channel with erosion control mats or turf to prevent soil erosion or use check dams constructed from sand or gravel filled bags.

Uncontaminated stormwater from the channel should discharge to the stormwater system. In some cases discharge onto non-erodable areas of land is permissible. Check with your local council. Do not allow discharge into neighbouring properties.

Roof drainage must discharge to the stormwater system, unless rainwater is being harvested. Complete the final stormwater drainage system before the roof is installed. Connect using either temporary or permanent downpipes. [See: Rainwater]

### 2. Minimise the potential for erosion

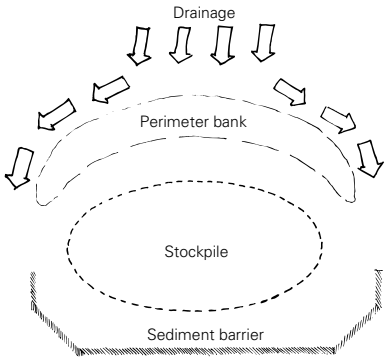
Construct a single vehicle entry/exit pad to minimise tracking of sediment onto roadways. Use a 150mm (minimum) layer of 40mm recycled aggregate or crushed rock. A raised hump across the entry/exit pad can be used to direct stormwater runoff into a sediment trap to the side of the pad.




**Sediment control layout on a compact urban site.**

Protect materials that may erode, particularly sand and soil stockpiles, with waterproof coverings. Contain waste in covered bins or traps made from geotextile fabric.

Locate stockpiles of building materials away from drainage paths and uphill of sediment barriers. Divert runoff around stockpiles unavoidably located in drainage paths using a perimeter bank uphill.




Use biodegradable erosion control mats to protect exposed earth. These are particularly useful on high risk soils and steep sites where there is a delay in building or site rehabilitation.

### 3. Prevent sediment-contaminated water leaving the site

Use barriers to trap coarse sediment at all points where stormwater leaves the site, before it can wash into gutters, drains and waterways. Install sediment fences down slope of the disturbed area, usually along the lowest site boundary with the ends returning uphill. Inspect barriers after storms and remove sediment. Stockpile extra sediment fence on site for emergency repairs. [See Sediment Control Devices]

Regularly sweep adjacent streets and gutters clean - do not hose them. Relocate sediment on site or dispose of it suitably. Remove accidental spills of soil or other material immediately.

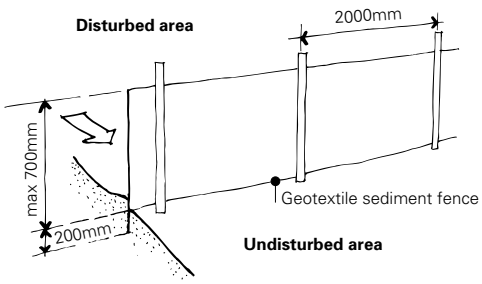
Maintain kerbside vegetation in a healthy state as it can function as an additional filter for sediment. Do not use nature strips or footpaths for parking or stockpiling unless unavoidable. Council permission is required.

Cut brick, tile or masonry on a pervious surface such as grass or loosened soil within the property boundary. The same applies when cleaning equipment. Waste concrete, paint and other solutions used on site should be properly disposed of so they do not contaminate stormwater. [See: Stormwater]

## SEDIMENT CONTROL DEVICES

### Geotextile fabric sediment fences

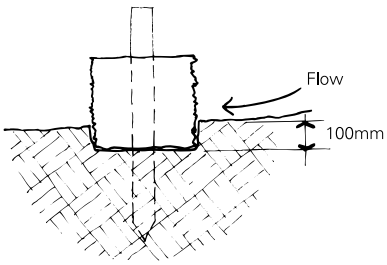
These are generally the most efficient barrier for building sites.




Constructed from geotextile fabric attached to posts, these fences trap sediment but allow water through. On small frontage sites with limited access, use steel posts and wire tied fences that can be readily unhooked for unloading of materials.

### Straw bale sediment fences

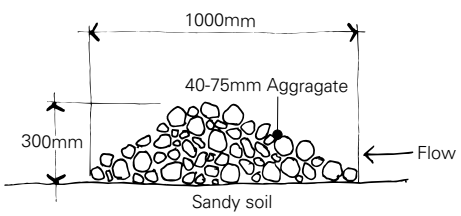
Secure straw bales with two stakes per bale. Butt the bales close together and set them into the ground as shown, to prevent water from flowing under or around them.




Straw bales do not filter sediment from stormwater as quickly as geotextile fabric and may not be the best solution on sites with high volumes of runoff. Re-use bales as mulch to stabilise soil after construction.

### Aggregate perimeter fences

Aggregate perimeter banks can be used as an alternative to sediment fences on flat, sandy sites with lower volumes of stormwater runoff.




### Filter trenches

Filter trenches act as a continuous filter for polluted runoff in flat sandy areas. They are not appropriate in areas with clay soils.

Runoff is captured in the trench and drains to a gully pit through a gravel filter. Locate trenches downhill from the disturbed area, generally along contours, with a minimum grade of 0.5 percent. Restrict access over trenches to prevent them clogging. Regular maintenance is required.

### Vegetated filter strips

These are useful as a secondary measure, generally not as a substitute for sediment barriers. Strips of turf or vegetation are used to trap sediment, acting as a buffer zone between the site and the gutter. The nature strip is often used for this purpose.

### Stormwater inlet traps

Stormwater inlets are not usually found in residential building lots but may occur on larger development sites. Construct a temporary filter fence around on-site stormwater inlet grates. Wrap geotextile fabric around posts fitted at each corner of the drainage grate. The base of the fabric should be embedded in soil.

### Off-site sediment traps

For safety and efficiency, sediment barriers should not be located outside property boundaries, particularly on roads. Anything placed on a road requires the permission of the road owner, whether it is the Council or the developer.

Sediment barriers in front of roadside stormwater inlets are rarely effective and usually just result in the sediment being washed down the street into the nearest gully inlet.

As a last resort use off-site sediment traps, made from sand or gravel bags of geotextile fabric. Ensure they do not fully block the gully inlet. Check daily and remove accumulated sediment.

## POST-CONSTRUCTION AND EROSION CONTROL

Stabilise the site as soon as possible after construction, or while the last trades are finishing, to minimise the potential for ongoing soil erosion.

Turf lawns are commonly used to stabilise soil but their high water consumption can be an environmental burden. Native ground cover plants do the same thing with considerably lower water use. Avoid replacing native vegetation with turf.

Mulch (straw or other material) can be used on open garden beds to protect soil and support plant growth. Mulch spread to a depth of 75-100mm minimises soil and water loss and controls weed growth. Mulch may be less suitable on steep sites and in high wind areas.

Temporary, quick germinating grasses such as rye and oats can be used to stabilise soil until slower growing plants can be established. This method is only effective after the grass seeds have germinated and established a root structure.

Semi permeable paving can be used to stabilise areas of the site. Avoid excessive use of hard surfaces that prevent stormwater being absorbed. [See: Stormwater]

Biodegradable erosion control mats are useful when revegetating steep slopes.

Integrate landscaping strategy with sediment control. For example, diversion channels and trenches that filter sediment can be used with rubble in the base to create a deep root planting opportunity. [See: Medium Density-Adelaide]

**ADDITIONAL KEY REFERENCES**

Stormwater Management Guide for Residential Buildings, HIA PATHE

DES 18 Site Management: Strategies for Minimising Environmental Impact, RAIA Environment Design Guide

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