Recommended Erosion and Sediment Controls for Residential Development

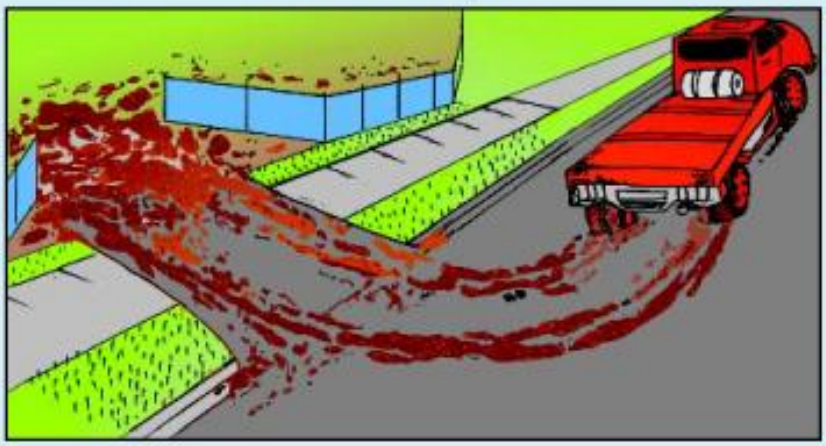
Site Rule 1 Plan before you start work on site

Site Rule 2 Keep mud off road and on site

Why is mud a problem?

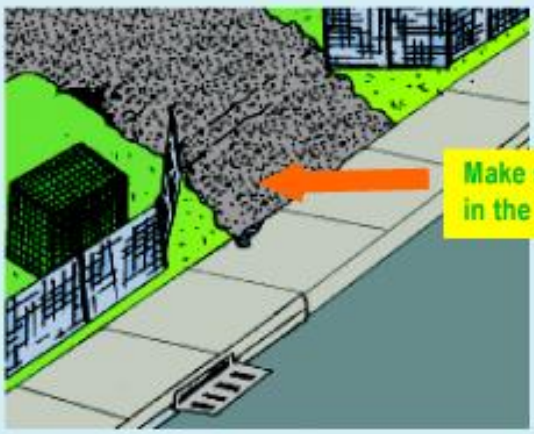
Two things happens when vehicles go on and off the site:

1. The surface area of the site is damaged making it dangerous.
2. Mud is carried back onto the roads and footpaths.



METHODS TO CONTROL MUD

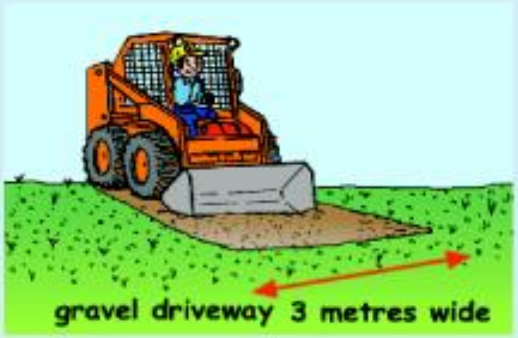
The following simple methods will help you to protect the surface of your site and help stop vehicles from dropping mud on the road from their wheels. The best way to do this is to put crushed rock on the crossover or access point of your building site.



Putting crushed rock on the access point of your site is a good way to prevent damage and provide a dry access point for vehicles.

Make sure gravel does not collect in the gutter or on the footpath.

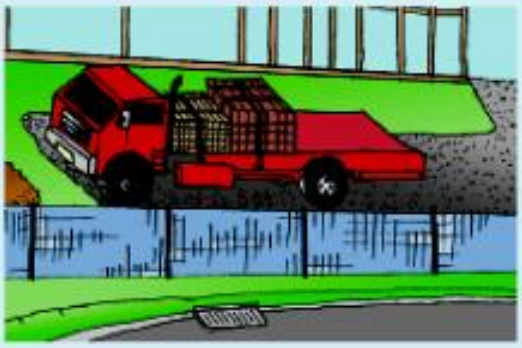
A gravel access point also stops mud getting on tyres and being taken onto the road.



Control Method 1: Build a crushed rock crossover

Remove top layer of soil at least 3 metres wide from road (or where concrete crossover ends) to nearest building point.

Use road base or 30 millimetre aggregate to a depth of 200 millimetres.



Control Method 2: Keep to crushed rock path

Only drive where you need to. Keep to a set path (preferably on crushed rock).

[**Note**: Heavy duty vehicle access flooring is also available for purchase or hire. Try a construction hire company such as Pro-Floor (03) 9804 3455 www.pro-floor.com]

Control Method 3: Remove mud from tyres

Use a shovel to remove mud from truck tyres before leaving site.

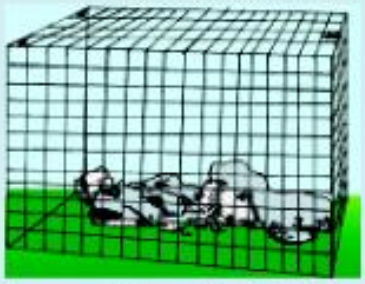
Control Method 4: Clean road

If mud goes on road, remove as much as possible and put it back on site.

Site Rule 3 Keep litter contained on site

METHODS TO CONTROL LITTER

The following simple methods will help you to stop litter leaving your site or being a hazard on site.



litter bin

Control Method 1: Litter bin

Put a litter bin on site. Make sure it has a lid.

Tell everyone to use the litter bin.

Empty the litter bin regularly.
Don't allow overflow.
Where possible, collect the materials from the litter bin for recycling and /or keep different materials in separate bins.

Useful Contacts

Waste Minimisation / Recycling:

EcoRecycle Victoria	1800 35 32 33

Control Method 2: Site fencing

Litter may be accidentally dropped and not put in the litter bin. Site fencing will help to keep this litter from being carried off site by wind or water.

Useful Contacts

Temporary Fencing:

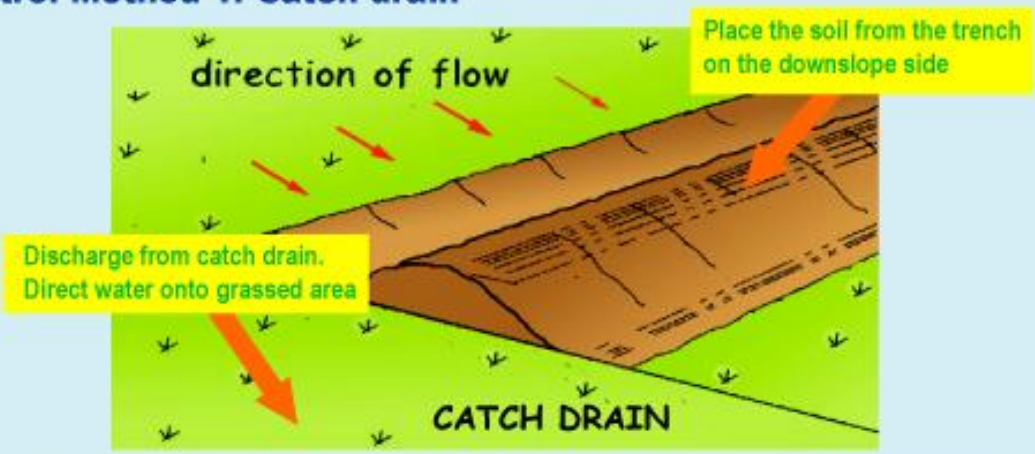
Australian Temporary Fencing	13 -1716
Victorian Temporary Fencing	(03) 9484 4000

Site Rule 4 Stop erosion on site

METHODS TO CONTROL EROSION

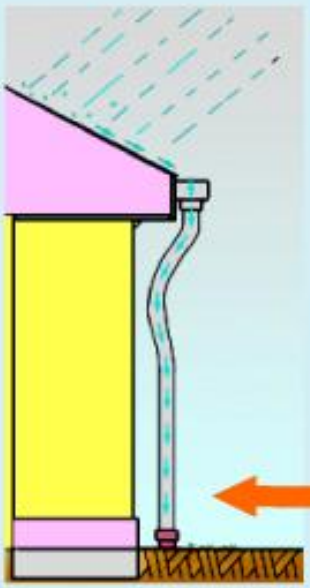
The following simple methods will help you to reduce the amount of runoff on site which causes erosion and increases sediment going into the stormwater system.

Control Method 1: Catch drain



Catch drains reduce the amount of water travelling across a sloped surface. A catch drain stops water upslope of your site flowing across the site. Dig trench on high side of block. The trench should be about 150 mm deep with a curved shape. The trench gradient should be less than 5%.

Control Method 2: Early downpipe connection



Connecting downpipes to the stormwater system has a number of benefits:

- less drainage problems on site
- less mud on site after rain
- a safer site
- less downtime after storms. Projects get finished sooner.

Aim to have downpipes connected to the stormwater as soon as the roof is on. If this is not possible, use a temporary connection such as flexible tubing or other temporary connection.

Aim to have the downpipes connected as soon as the roof is installed (temporary or permanent)

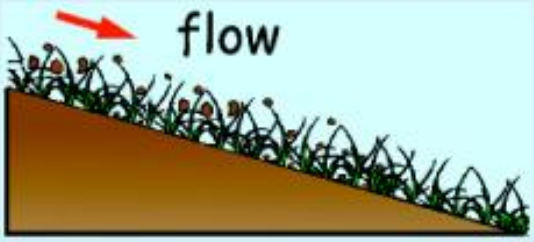
temporary or permanent downpipe

Control Method 3: Pipe roof water onto a grassed area.

If you cannot connect to the stormwater, pipe the water away from the building onto a vegetated area or where there is good ground cover.

This lets water seep into the ground with less damage to the surface of the soil.

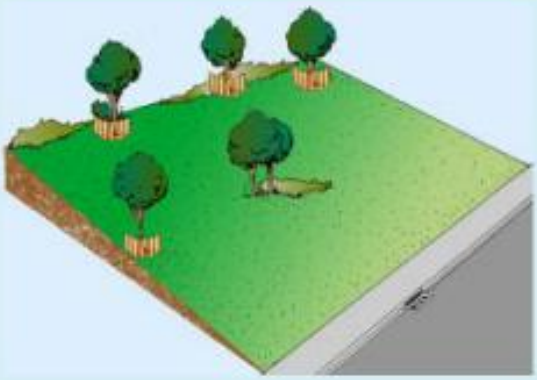
Control Method 4: Keep areas of vegetation.



grassed areas trap soil particles

Vegetation helps protect the soil from the effects of rain and surface water by:

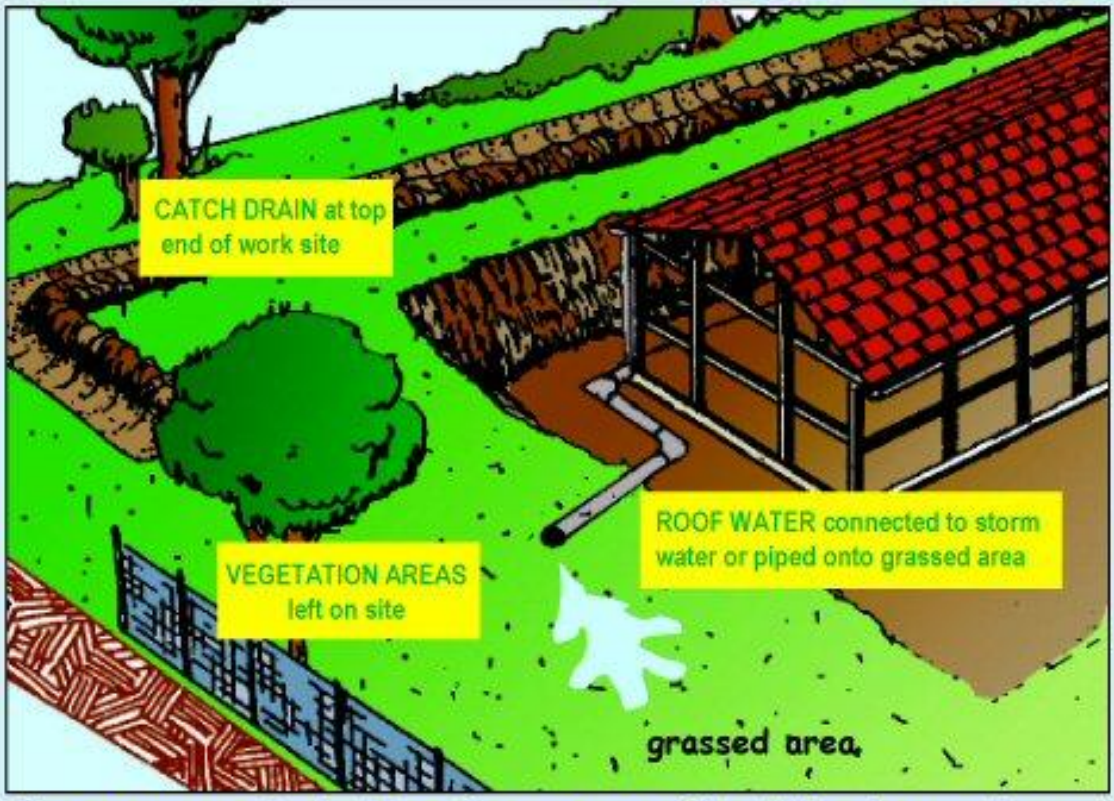
- acting as a cushion. Rain drops are unable to move soil particles when they hit the surface.
- slowing the flow of water across the ground. Fast water is able to carry more soil particles off site.
- roots hold the soil together so it cannot be moved.
- grassed areas acting as a filter trapping soil particles.



Decide what areas of vegetation you are going to keep on site. Mark trees, shrubs and grassed areas that you are keeping .

Protect areas close to the boundary, drains and gutters, and where surface water flows may carry sediment off site.

With careful planning the problem of erosion can be reduced



Recommended - Use temporary flexible downpipe (See products and services links)

Site Rule 5 Contain sediments and stockpiles on or off site

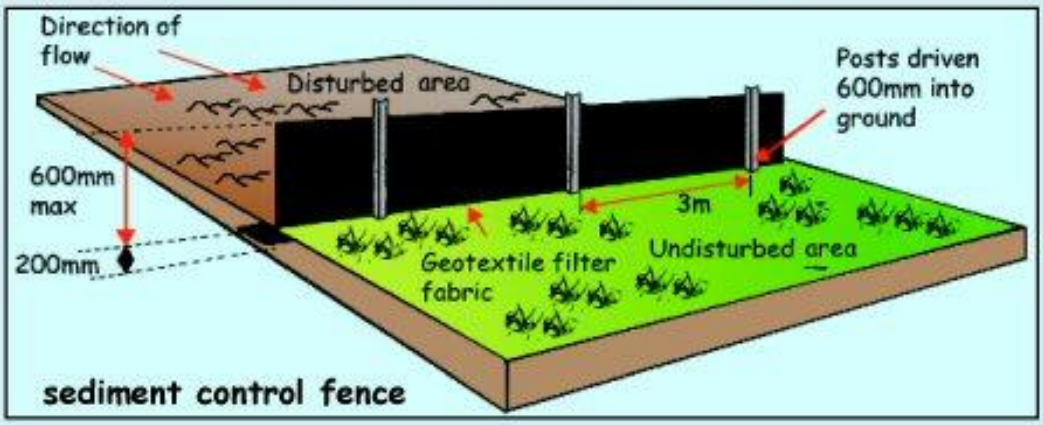
Stockpiles should be stored on site, not on footpaths or roads. Tell suppliers this when placing your order or be on site for deliveries to make sure they are put in the right place.

In some cases it may be impossible to store stockpiles on site. In this case, a different set of control methods will be used.

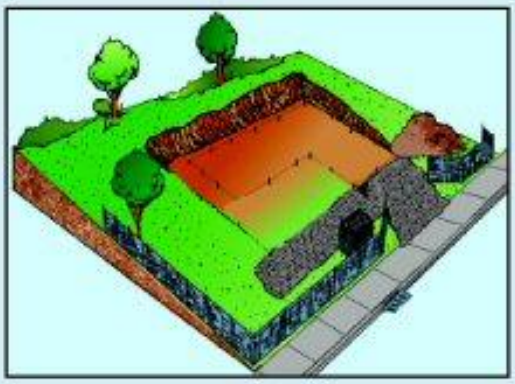
METHODS TO CONTAIN SEDIMENT ON SITE

Method 1: Sediment control fences

Sediment control fences stop sediment from being washed off site.

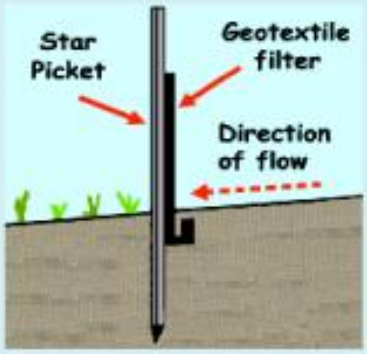


TO BUILD A SEDIMENT CONTROL FENCE:



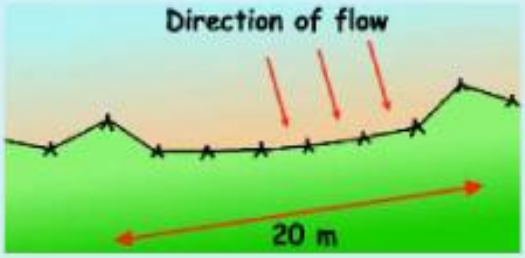
a) Identify the low point of site.

This is the point where the land will allow water to carry sediment off the building site.



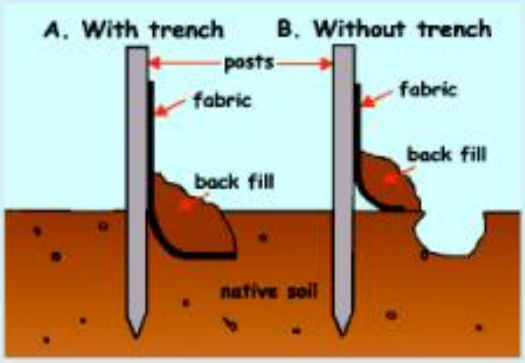
b) Put in star pickets.

Put 1500 mm star pickets at least 3000 mm apart and 600 mm deep.



c) Spread volume of water.

Put a star picket 1500 mm upslope of the others every 20 metres (if the fence is longer than 20 m). This spreads the volume of water that flows through each section of fence.

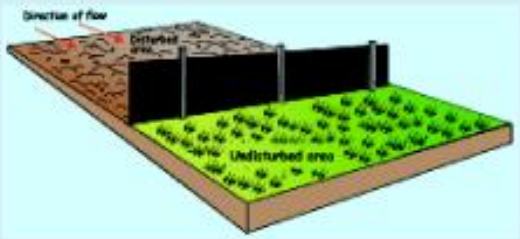


d) Dig a trench along the fence line.

The trench will be used to bury the base of the sediment control fabric.

The trench should be 1500 mm deep.

Alternatively, use backfill or aggregate to make sure the fabric is tight on the ground. Then check that water cannot go underneath the fabric.



e) Fix geotextile to posts

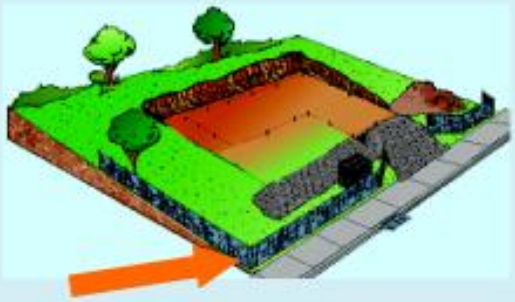
[Note: Geotextile material allows water to pass through but traps sediments.]

Use wire ties to attach the geotextile to the upslope side of the fence posts.

Only join fabric at the star pickets with a 150 mm overlap

Method 2: Straw bale filters

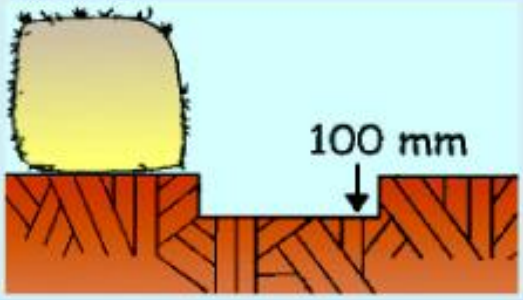
Straw bale filters, like sediment control fences, stop sediment from being washed off site. Use straw to make your filter - **DO NOT USE HAY** which spreads weeds.



TO BUILD A STRAW BALE FILTER:

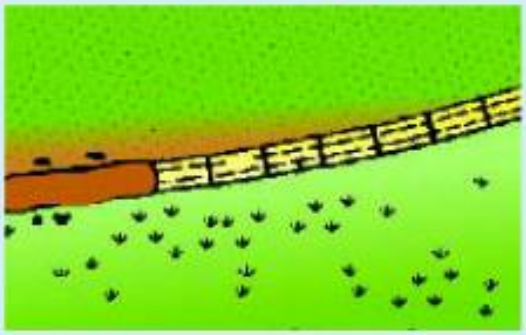
a) Identify the low point of site.

This is the point where the land will allow water to carry sediment off the building site.



b) Dig a trench

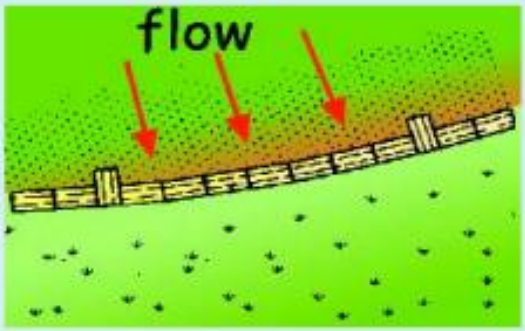
Dig a trench 100 mm deep to stop water running under the straw bale. The trench should be as wide as the straw bale and as long as needed along the contour lines of the block.



c) Put the bales along the trenchline.

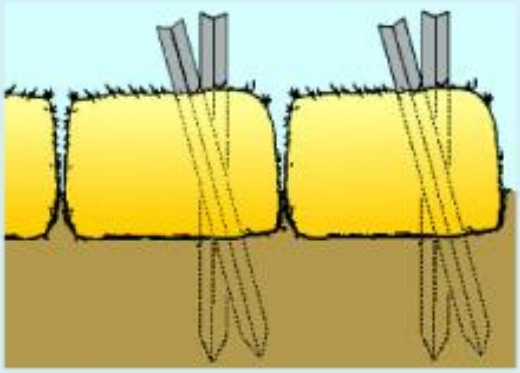
Put the bales lengthways along the trench. Use straw to fill any gaps between bales.

Bind bales along the side rather than top and bottom as they will hold together better when wet.



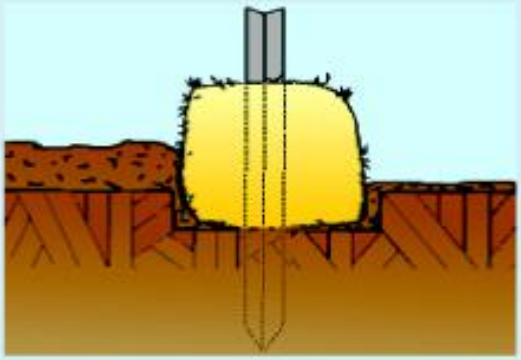
d) Spread volume of water.

If the length of bale fence is longer than 20 m turn one bale so that it faces the slope every 20 metres. This spreads the volume of water that flows through each section of fence.



e) Fix straw bales in place

Fix the bales in place using two 1.2 m star pickets at each end of each bale. Angle one stake towards the previously laid bale before driving it 600 mm into the ground. Put the other stake in vertically.



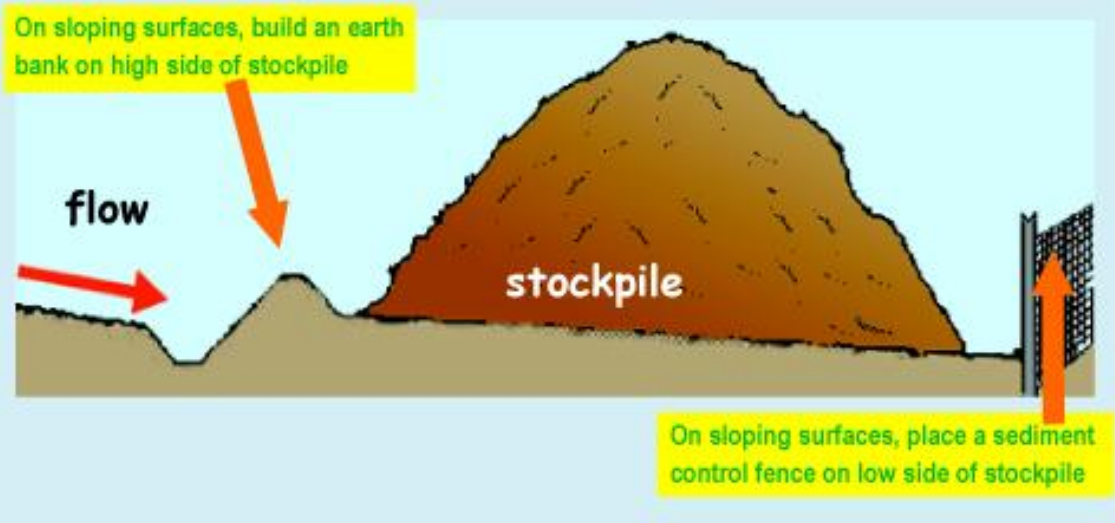
f) Backfill the trench

Backfill and compact the trench to ground level on the downslope side of the straw bales.

On the upslope side, build up the soil to 100 mm This will slow down the speed of the water flows and trap coarse sediments.

Method 3: Use catch drains to protect stockpiles

A catch drain stops water upslope flowing through the stockpile.

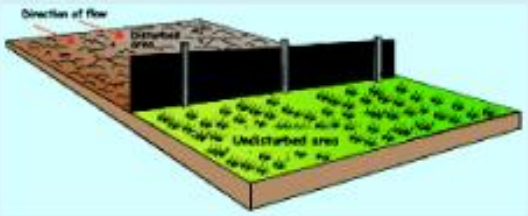


Method 3: Control dust and slurry from cutting

A large amount of dust can be made from cutting materials such as concrete, bricks and tiles. When mixed with water this material can be turned into slurry and washed into waterways. Cement changes the pH of water which may then kill water plants and animals. The following methods will help keep this waste on site and out of the waterways:

a) Cut materials on site

Choose a set area to do all your cutting. This area should be on the building site and away from all stormwater drain.



b) Put sediment control filters downslope

Sediment control fences and straw bale filters should be placed downslope to catch cutting slurry.

c) Use a gravel sausage or gravel inlet filter

When cutting must take place near stormwater drains, use gravel sausages or gravel inlet filter described on Pages 24 and 25.

Alternatively, you can buy sleeves from geotextile companies.

d) Clean up when finished

When you have finished cutting, clean up your equipment in the cutting area.

Use a broom to clean up and get rid of the slurry where it can't get into the stormwater system or onto the building site.

DO NOT HOSE THE SLURRY AWAY

WHEN UNABLE TO STORE STOCKPILES ON SITE

You may have to store a stockpile off site (although never on the footpath). Contact the council to make sure that you have the appropriate council permits.

The council will tell you how stockpiles must be stored off site. Materials can be stored in sand bags or bale/pallet and /or with sediment controls around them. Containers such as rubbish skips with opening sides that you can get into easily are a good idea.

Material must not get into drains, gutters or the stormwater system. The following control methods can be used when storing materials or working off site.

Method 1: Gravel inlet filters

Gravel inlet filters stop brick, tile and concrete dust from getting into the stormwater system.

TO BUILD A GRAVEL INLET FILTER:

a) Cover the opening with wire mesh

Put a wire mesh with 12 mm openings over the side entry pit opening.

Make sure the mesh goes at least 300 mm beyond the side, bottom and top of the pit openings.

b) Cover the mesh with gravel

Put 25 -40 mm gravel against the mesh to anchor it against the gutter. It should cover the inlet openings completely.

c) Clean up collected slurry and gravel

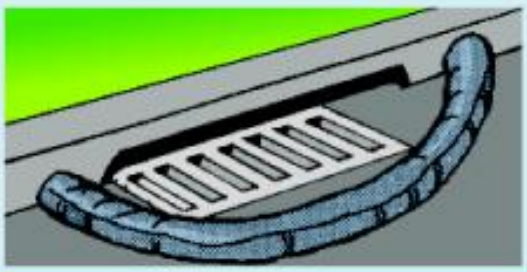
Clean the gravel regularly. Do this by clearing it away and cleaning it where the slurry can't re-enter the stormwater system or go onto the building site.

Remove the slurry at the end of the job using a shovel and broom. **DO NOT HOSE THE SLURRY INTO THE DRAIN**

Method 2: Gravel sausage

A gravel sausage is a temporary collection device that can be used when stockpiles or cutting is done off site.

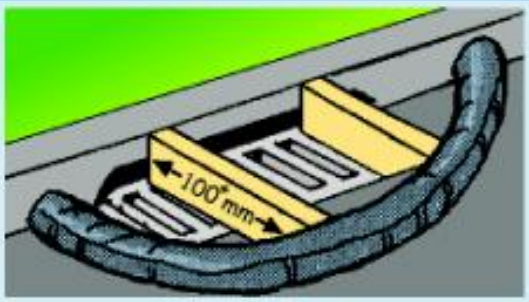
TO BUILD A GRAVEL SAUSAGE:



a) Make the sausage sleeve

A gravel sausage is made from a geotextile sleeve filled with 25 - 50 mm gravel.

The gravel sausage should be 150 mm high.



b) Put the gravel sausage across the opening of the inlet pit

Make sure that the sausage is tight with the kerbing on both sides of the inlet pit.

There should be a 100 mm gap between the front of the pit and sausage. Use wooden blocks to keep the 100 mm gap.

c) Clean out gravel sausage regularly

When soil and sand builds up around the gravel sausage, this should be disposited on site.

DO NOT HOSE IT DOWN THE GUTTER

Site Rule 6 Clean and wash up on site

METHODS TO CONTROL WASHING UP

The following simple methods will help you to stop the contamination of stormwater from paint, plaster or concrete washings.

Control Method 1: Have a set washing up area

Choose a set area to do all your washing up. This area should be on the building site and away from all stormwater drains.

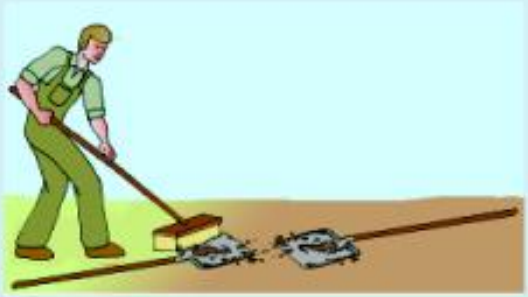
You could use the same area you have chosen for tile and brick cutting.

Put sediment control fences downslope where water flows off site

Control Method 2: Get rid of concrete slurry on site

Collect wash water from concrete mixers in a wheel barrow and get rid of it in your wash area.

You can also safely get rid of concrete slurry by tipping small amounts in a ditch lined with plastic or geotextile liners. When the water evaporates or soaks into the surface the solids can then be put into a skip bin or recycled in construction or as road base.



Control Method 3: Clean equipment off before washing

Brush dirt and mud off equipment before you wash it. Spin rollers and brushes to remove paint before you wash them.

You will then need less water to clean this equipment.

Clean excess paint from brush onto a rag or newspaper.

Control Method 4: Clean painting tools carefully

Use one container to wash the brush and another to rinse it. Let first container stand overnight to let solids settle. Then pour out water on ground if it is not too dirty and put settled solids in a bin.

Wash oil based paints in solvent baths until clean. DO NOT PUT THE SOLVENT ON THE GROUND. Contact a waste disposal company for removal.

Checklist

How well are you doing?
CHECK YOUR SITE

Take the test!

Yes ✓

SITE RULE 1 — **Plan before you start work on site.**

- ☐ crossover away from lowest point
- ☐ sediment control fence on lowest side
- ☐ stockpiles away from lowest point
- ☐ marked trees and vegetation to keep on site

☐

SITE RULE 2 — **Keep mud off road and on site**

- ☐ crushed rock crossover
- ☐ trucks keep to crushed rock areas
- ☐ mud removed from tyres before leaving block
- ☐ clean road if muddy

☐

SITE RULE 3 — **Keep litter contained on site**

- ☐ site fencing in place
- ☐ litter bin in place with lid

☐

SITE RULE 4 — **Stop erosion on site**

- ☐ catch drains on high side of site
- ☐ vegetation areas
- ☐ downpipes

☐

SITE RULE 5 — **Contain stockpiles on or off site**

- ☐ straw bale filters
- ☐ sediment control fence
- ☐ gravel inlet filters
- ☐ block and gravel inlet filters

☐

SITE RULE 6 — **Clean and wash up on site**

- ☐ cutting and clean up area on site
- ☐ clean equipment off before washing
- ☐ sediment filters downslope

☐