



# A guide to erosion control for water quality improvement



Erosion in Southland

New Zealand has a significant erosion challenge with more than 200 million tonnes of soil lost from the land to the sea each year. Some of this is natural but the majority is the result of land development like native vegetation clearance and grazing animals, as well as changes to waterway flows from drainage and river straightening.

Southland has over 120,000 hectares of land that has a high risk of erosion, with the region losing an estimated 7.6 million tonnes of soil per year. Future climate predictions of more extreme weather events will increase these volumes. This soil material is often rich in contaminants, negatively impacting on the stream life and our community's use and values within the waterway. When soil materials enter a waterway it is called

sediment. High sediment loads also impact our estuaries and coastal areas.

The good news is we have a number of ways to prevent, repair or manage erosion to reduce soil loss from the land and sediment build up in our waterways.





Erosion control planting

### ► Prevention of erosion

Identifying vulnerable sites and implementing careful land and stock management will, in many cases, stop or slow down erosion. Areas that are starting to erode or slump can be planted in trees so the roots bind the soil and provide better drainage. Careful grazing of the site to retain a thicker sward of grass will shield the land from heavy rain, frosts and wind, reducing soil movement. On larger eroding sites, putting in drainage to direct water away from the area is required to further stabilise the land. Stream banks can be protected by reducing the steepness, excluding stock and planting.

### ► Repairing existing erosion

For slips the key is to remove water that is causing the soil to fall from the base clays. This is done with planting trees like willows, restricting grazing and directing surface waters away from the site.

Stream banks being undercut by strong flows can be armoured by rocks or re-battered to 45 degrees and planted. Areas that are heavily trampled by stock can be fenced off, covered in rock or grazed less often to retain grass cover. Roads and lanes can have cut outs along the edges to allow water to run off rather than gain speed and volume leading to erosion.

### ► Mitigating erosion

Planting in eroding or vulnerable areas can stabilise the land, reducing soil loss. You could plant native, exotic or commercial species depending on access to site and suitability. If planting is not an option, retiring the area from grazing will allow grasses and native plants to grow, protecting the land from stock trampling and weathering.

Whether soil material is moving from natural erosion like slips or man-made erosion like roads or agriculture, traps to capture this material can be constructed. Called sediment traps these can be made from growing vegetation filter strips, synthetic filtering materials or ponds and wetlands (Read sediment trap factsheet). Regular maintenance is required to ensure the sediment trap works efficiently and the harvested material can be returned to the land.

For larger gully systems, steep land or intensively farmed areas a combination of these mitigations could be required to reduce soil loss and sediment loads to waterways.

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### Further assistance

For advice and designs to suit your specific needs, call 0800 76 88 45 to arrange a free visit by Environment Southland's land sustainability team.