

Sediment Management Erosion Control vs Sediment Control

Eroded soils discharge into Auckland's waterways, polluting them and causing problems for animals and plants in the water and people wanting to use or enjoy it.

Erosion versus Sedimentation

Erosion and sedimentation, although tightly linked, are not the same at all. *Erosion* is the action of wind and water wearing away exposed soils. On the other hand sediment is the product of this action and *sedimentation* is the result once this sediment gets into waterways.

So by reducing erosion in the first place, sediment is at best prevented and at worst, reduced.

Why control erosion?

Auckland soils are mostly fine grained silts and clays which take a very long time to settle in water compared with larger silt and sand particles. They remain suspended, clouding the water, and if they do eventually settle are easily re-suspended. This means sediment control measures that try to detain sediment or remove it from water are not always very successful.

Sediment control methods such as sediment retention ponds, decanting earth bunds and silt fences become less effective as sediment builds up.

Therefore, controlling erosion makes the job of controlling sediment much easier – the less soil eroded, the less sediment there is to treat and discharge into waterways.

Soil settleability

Soil settleability is a term for how long sediment takes to drop to the bottom in water. If a mixture of fine sand, silt and clay was dropped into very deep fresh water and left for 24 hours...

- The fine sand would drop 432m
- The silt would drop 345m
- The clay would drop a mere 9mm!

How can erosion be minimised?

Obviously the wind and rain can't be turned off to suit earthworks projects. However, simple planning combined with a few practical tools* can greatly reduce the amount of erosion on a site.

* Refer to Auckland regional Council erosion and sediment control guidelines (TP90) for more information.

TIMING

Work within the driest season

- Plan projects within Auckland's earthworks season and allow plenty of time for hiccups
- Coordinate with other services (roading, gas, power, telephone, drainage) and put protection measures in place on areas not affected by future service works.

STAGING

Staging work is an important tool for erosion control

- Expose earth a little at a time
- Revegetate along the way by mulching or topsoiling and grassing
- Sow vegetation areas early to get a good strike rate. This saves time and money – having to reseed is costly
- Fit land development and land capability / use the "low impact design" approach
- Stabilise areas that won't be worked for a while by revegetating or by using geotextiles

TOOLS

When earth is exposed use a combination of erosion and sediment control methods

- Erosion control – prevent the generation of sediment by using:
 - diversion channels
 - contour drains
 - topsoil bunds
 - check dams
 - flumes/ down drains
 - surface roughening
 - revegetation and/ or geotextile on slopes
- Sediment controls – minimise sediment from leaving exposed areas by using:
 - vegetative buffer strips at exposed boundaries
 - silt fences
 - decanting earth bunds
 - sediment detention structures (e.g. ponds)

The key tool to successful erosion and sediment control is to stop erosion before it happens. **REMEMBER: erosion control before sediment control.**