



Stopping erosion in its tracks

Erosion takes many forms, so a range of techniques are used to repair it and prevent future occurrences. The Herbert Gully & Grazing Project addresses gully, stream bank and sheet (or hillside) erosion. Remediation work has improved the land's condition and reduced fine sediment flowing into waterways and out to the Great Barrier Reef lagoon.

EROSION REPAIR TECHNIQUES

Four main engineered remediation techniques were used on cattle stations in the Herbert River catchment:

- Rock chutes
- Tailings dam remediation
- Whoa boys and road drainage management
- Gully complex reshaping and contouring

All remediation techniques include site assessments, engineering design, construction, revegetation and ongoing monitoring activities.

ROCK CHUTES

Five rock chutes were constructed to repair gully erosion, ranging from 20m to 100m. Steep and lined with quarry rock, they slow water flowing over a gully head, control its movements using natural waterway processes, and prevent further erosion. A well-constructed engineered rock chute typically provides longer-term erosion control. In some cases, these chutes were combined with bund walls.

The 100m rock chute diverts water from a dam, taking it along the path of a natural water course and reducing the height of the water drop by several metres.

The chute also includes a fish passage - a series of six pools rising 2.3m - to help with movement from the creek system to the dam.

Together, the five rock chutes will each year prevent an estimated 500 tonnes of sediment - the equivalent to 20 truck loads - from reaching the Great Barrier Reef.

TAILINGS DAM REMEDIATION WORK

Erosion from degradation of historical tin mine tailings dams is common in the upper Herbert River catchment. Tailings dams were repaired on two properties as part of this project.

HERBERT GULLY & GRAZING PROJECT



Work included dam wall plugs, small rock chutes, spillway repairs and reinstating by-wash structures. The goal was dams that once again operated as intended. There has also been a dramatic improvement in water clarity and the beginnings of a transition from dams to wetlands.

Tailings dam remediation activities will prevent an estimated 400 tonnes of fine sediment from entering the Great Barrier Reef lagoon on an annual basis.

WHOA-BOYS AND ROAD DRAINAGE MANAGEMENT

These earth bunds/diversion banks were constructed across tracks or roads, or in conjunction with rock chutes, at four locations on cattle stations. At Glen Ruth Station, repair work included a 100m bund wall, back-filling of road drains and a basin with gentle banks where native grasses were planted. It also included whoa boys across station roads to direct the wet season storm water away from the sites.

Whoa boys are a relatively low-cost structure, with potential for wider adoption by landholders, ideally with some training in placement and construction.

“One gully system was two metres deep in places and more than half a kilometre long. We were getting big valleys where the grass didn’t grow, coming off Cameron Creek which feeds into the Herbert River.”

– **Grazier Curtis Archer**



GULLY COMPLEX RESHAPING/ CONTOURING

Used at one location. Gully complex reshaping creates smooth, gradual slopes that reduce runoff and ongoing erosion. Reshaping was coupled with soil treatment (capping the finished area with topsoil) and revegetation work. This is a relatively low-cost technique compared with other methods. Avoiding rock haulage costs was ideal given this site’s remote location in the upper catchment. Reshaping combined with whoa-boys, road drainage and revegetation, has proven to be successful over several wet seasons.

This gully reshaping work will prevent an estimated 20 tonnes of sediment from entering the Great Barrier Reef lagoon on an annual basis.

RESULTS

Each year, these remediation works will collectively prevent an estimated 920 tonnes of fine sediment from reaching the Great Barrier Reef lagoon.

“These engineered structures are part of a solution that also includes fencing to manage erosion and cattle movements, the installation of off-stream watering points and most importantly for the long-term, changes to grazing management practices.” – **Terrain NRM’s Jen Mackenzie**

ABOUT THE HERBERT GULLY AND GRAZING PROJECT

Terrain NRM is helping Wet Tropics landholders in the Herbert River catchment with erosion control and grazing management practice changes. This five-year program is funded through the Australian Government’s Reef Trust IV program. It combines engineered erosion solutions with fencing, off-stream watering alternatives and learning opportunities.

For more information contact Terrain NRM at **(07) 4043 8000**, email info@terrain.org.au or visit www.terrain.org.au
