



CASE STUDY:

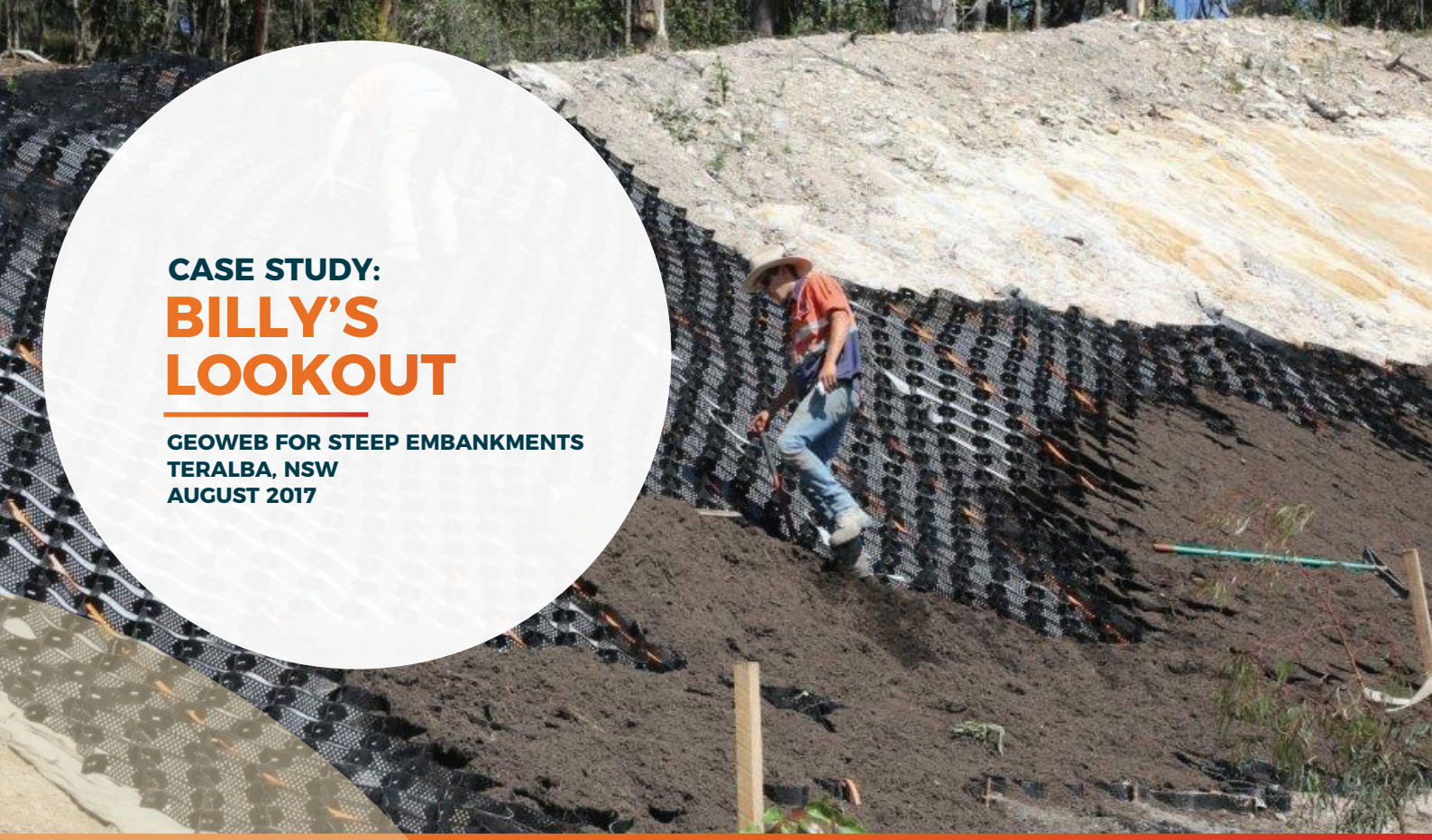
BILLY'S LOOKOUT

**GEOWEB FOR STEEP EMBANKMENTS
TERALBA, NSW
AUGUST 2017**

Geoweb Geocell Cellular Confinement System

The Geoweb geocell cellular confinement system is the most advanced soil stabilisation technology available. It was initially developed by Presto Geosystems together with the US Army Corp of Engineers to allow heavy vehicles to travel over soft ground. It is widely used in Australia for load support, erosion control, slope stability, retaining structures and high velocity channels.

The Geoweb system consists of a robust three-dimensional structure housing a network of interconnected cells that confine and compact soil. The confinement action prevents erosion and improves the structural performance of the soil or aggregate infill providing an alternative to reinforced concrete or armour. The Geoweb cellular confinement system comes in collapsed, lightweight panels which can be handled easily and safely onsite.



A new housing subdivision consisting of 480 lots is being developed in Teralba, NSW by a local developer, the McCloy Group. The subdivision offers panoramic views of Lake Macquarie and will include 18 hectares of open space, a childcare centre and parkland. Stage 1 consisting of 30 lots has been recently completed.

The project presented significant challenges with steep slopes, water run-off issues and was a high visibility site. Lake Macquarie City Council in consultation with McCloy's and Geofabrics approved the Geoweb proposal despite this being the first installation of Geoweb in this terrain. The methodology adopted for slope stabilisation is viewed as a case study for future development in the area.

The embankment of concern consisted of sandstone and weathered shale. McCloy Group engaged the services of GSS to work with their engineers, designers and Geofabrics to develop a three dimensional slope stabilization plan. Using a 150 mm deep Geoweb cell allowed sufficient soil depth for selected native plants to establish and with a cover of mulch, allowed the embankment to be protected from ongoing erosion, a major concern of Council.

Due to the steepness of the embankment, the presence of rock and limited access to the crest it was decided to use a combination of "soil nailing" and poly-tendons anchored to a steel cable anchored along the crest. Each tendon was threaded through specific apertures in the cells and secured by Atra clips at intermediate intervals to secure the structure. This ensured an economic and effective solution to the challenging soil stability problems in the critical areas of load support, slope protection, and earth retention.

> Billy's Lookout Case Study – Continued.

As an aesthetic touch, some Geoweb panels were terminated part way down the slope to form a wave pattern and Coir Logs secured to the trailing edges. The result is quite unique with the exposed sandstone rock face contrasting well with the vegetated Geoweb panels.

The stable, well vegetated and rehabilitated site was not only a success for the developers and future residents but seen as a highly successful project by Council and a path forward for similar developments in the future.



INSTALLATION OF THE GEOWEB SYSTEM ON THE SLOPE



ADDING INTEREST

Geoweb panels were terminated part way down the slope to form a wave pattern and Coir Logs secured to the trailing edges.



REVEGETATED

The slope after plant establishment



INSTALLING BIDIM C

On this project the client elected to weld the bidim C panels together in lanes to prevent shifting of the geotextile when the large geomembrane panels were dragged across. In other applications where geomembrane will be rolled across the bidim C a simple 10 mm overlap is all that is required to deliver the conductivity required for leak detection testing.

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