

West Cliff Project

April 2013

Client: BHP Billiton

Project Partners:



Environment
& Heritage

Sustainability
Advantage



Project Details

Date: April 2013

Location: West Cliff Colliery

Client: BHP Billiton

Length: 0.5 km

Quantity: 1,000 tonnes

Contractor: StabilCo

Road Description: Internal mine haul road.

Haul road used by loaded transport vehicles to recover coal from stockpile and transport to port.

Trucks loaded to legal limits being 80 tonne payload for A-double axle configuration.

Existing pavement exhibiting signs of surface erosion & distress.

Design & Construction:

300mm overlay of existing unsealed road.

Construction undertaken under traffic.

Unbound granular pavement design.

Product:

MatrixBase


(20mm x 0mm Coal wash reject aggregates
+ Power Station Ash)



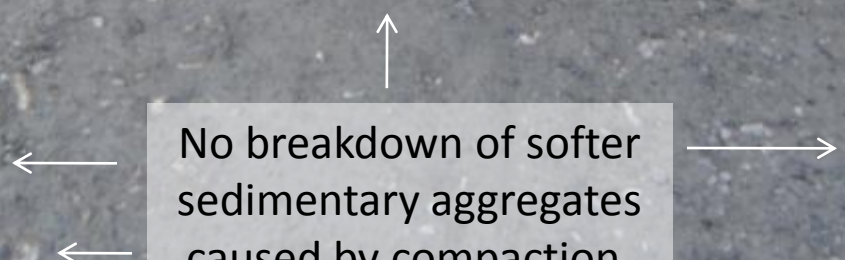
Deliver & spread, compact, trim and traffic.



Construction under traffic.

A close-up photograph of a steel smooth-drum roller from a road compactor. The roller is positioned on a dark, granular road surface. The roller's drum is dark and shows signs of use. The frame of the roller is yellow and shows some rust. A semi-transparent text box is overlaid on the upper part of the roller.

Excellent compaction by steel smooth-drum roller.

A diagrammatic set of arrows pointing towards a central text box. There is one arrow pointing upwards from the text box to the road surface. There are two arrows pointing outwards horizontally from the text box, one to the left and one to the right. There are also two arrows pointing outwards horizontally from the left side of the text box, one above and one below the horizontal arrow.

No breakdown of softer sedimentary aggregates caused by compaction.

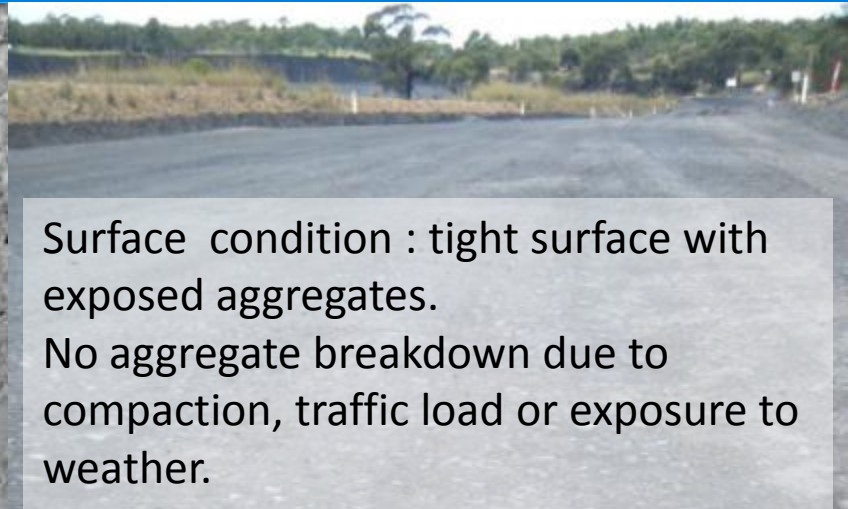


Compaction testing.



Unsealed roads are trafficked in all weather.





Surface condition : tight surface with exposed aggregates.
No aggregate breakdown due to compaction, traffic load or exposure to weather.



The pictured sample was retrieved from within the wheel path of the mine road after 12 months of heavy traffic.

The aggregate particles are intact. There is no evidence of fracture, breakdown or weathering by mechanical or chemical means.

The particle size distribution was compared with samples taken during production. Particle size analysis confirmed that the grading pre-construction was almost identical to the road sample grading.

Conclusion: Aggregates surrounded and supported in a matrix are held in triaxial confinement.



Cost and Sustainability Advantages:

No quarrying	100% waste materials
Reduced material	compacted density is 30% lighter

Technical Outcomes:

MatrixBase	performance of low strength/durability aggregates for heavily trafficked unsealed roads
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Results:

Based on the success and low maintenance requirements of MatrixBase, BHP Billiton requested StabilCo to undertake the rehabilitation by overlay of West Cliff mine roads.

After inspection, testing and reporting of MatrixBase at West Cliff and other sites, based on field performance, the NSW road authority (RMS) undertook a field trial and reconstruction of 800m of an arterial road using MatrixBase. (See RMS Kangaroo Valley Trial.)