

Maccaferri promotes turnkey solutions for the mining industry

A company with a 60-year history in South Africa is Maccaferri SA, probably best known for its gabion retaining structures although it has a host of other products and systems. Mining is one of the company's prime markets and to increase its engagement with this sector the company is increasingly emphasising turnkey solutions, an approach which has seen it developing partnering arrangements with mining clients, as well as consulting engineers and contractors.

Explaining the strategy, Joseph Meadows, Maccaferri SA's Business Development Manager: Mining, says that many clients in the mining field want an 'all in one' solution for specific projects. "They're keen on a single interface and this is what we can provide. We've developed relationships with a number of leading consultants and contractors and working in conjunction with them we're able to tackle projects on a turnkey basis."

A classic example of this approach was provided a few years back when Botswana's leading diamond miner, Debswana, engaged with Maccaferri to design and install a rockfall mitigation solution at its giant Jwaneng mine. Maccaferri was able to provide a

turnkey drapery solution in conjunction with its partners, engineering consultants Melis & du Plessis and contractors Wepex. In this case, Maccaferri acted as the project manager in association with the consultants to complete the design and also provided on-site supervision and technical advice.

A feature of the project was the use of an innovative drape wire decoiling machine – designed and built by Wepex – which could traverse the high wall decoiling the rolls of mesh, all under remote control.

Comments Meadows: "I should stress that Maccaferri is neither a consulting engineer nor a contractor. However, in conjunction with appropriate partners we can provide an all-encompassing solution that enables us to



contribute not just our products but also the in-depth expertise we have accumulated over many years."

More recently, the same team that was responsible for the Jwaneng contract carried out a similar project at Debswana's Orapa mine in Botswana. The mine required rockfall mitigation measures to be installed on two sections of highwall that were above active haul roads. A drapery rockfall solution was adopted based on Maccaferri's Steelgrid HR50, a high strength,

steel wire geocomposite which is used in conjunction with anchor plates, U-bolts and mesh connectors.

The project – successfully completed in November 2015 – received a 'special mention' in the prestigious Best Project Awards organised annually by *Modern Mining's* sister magazine, *Construction World*.

The Debswana contracts are just two examples of a wide array of installations by Maccaferri at mines all over Africa, including

Above: A 25 m high wall constructed at the Kwagga North coal mine in Mpumalanga. This Mechanically Stabilised Earth (MSE) wall is the highest ever built by Maccaferri in South Africa.

Below: The Orapa slope stabilisation installation by Maccaferri and its partners built on the success previously achieved at Jwaneng.

Below: Rock slope stabilisation at Jwaneng in Botswana. Maccaferri was able to provide a turnkey drapery solution.

Centre: The innovative decoiling machine used to install Maccaferri's drapery system at Jwaneng.





Above: MacRes and Terramesh tip wall at Optimum colliery.

Centre: A Maccaferri MSE wall at Randgold Resources' Tongon gold mine in Côte d'Ivoire.



Above: Maccaferri provided the tip wall at Banro's Twangiza gold mine in the DRC.

the Klipspruit and Grootegeluk coal mines in South Africa, the Ngezi platinum mine in Zimbabwe, the Husab and Kayelekera uranium mines in Namibia and Malawi respectively, the Iduapriem gold mine in Ghana, the Tongon gold mine in Côte d'Ivoire, the Twangiza gold mine in the DRC and the Gangama mineral sands mine in Sierra Leone.

In some cases, Maccaferri's involvement with a project will last for many years after the initial installation. A case in point is provided by a contract completed at the Marikana platinum mine in 2002. The mine required a 22,5 m tip wall for its primary crusher – the challenge, however, was that the foundation had compressible soil characteristics and some settlement was predicted by the geotechnical consultants.

"To accommodate the settlement and working in conjunction with DRA, we provided our Terramesh mechanically stabilised earth wall system," says Meadows. "This is a modular system comprising a gabion-like front face with sandwiched layers of soil reinforcement. We've continued to survey the wall annually and the structure has performed as predicted, adequately accommodating the subsequent settlement. This demonstrates our long-term commitment to serviceability and asset protection."

Frequently Maccaferri will propose alternatives that are more cost-effective than conventional solutions. In 2011, for example, its Paramesh system was installed at the Grootegeluk coal mine in South Africa's Limpopo Province as part of the Grootegeluk Medupi expansion project. The mine required a 12,5 m high tip wall to accommodate fully-laden Cat 777 tipper trucks.

The initial design was for a traditional cantilever reinforced concrete wall. However, the

consultants, LSL Consulting, also approached Maccaferri for an alternative retaining wall solution. The company proposed a vertical, 12,5 m high, 120 m long Paramesh structure, consisting of Terramesh baskets in combination with Paralink 300 geosynthetic soil reinforcement grids and MacTex non-woven double needle punched geotextile. The proposal was accepted by the project team and the installation was successfully carried out between March and August 2011.

"The overall cost of the Paramesh system was lower than the conventional solution," notes Meadows. "Moreover, the flexibility of the system enables it to cope with any settlement and consolidation. No specialised lifting equipment was required during construction as all the elements of the system are compact and not excessive in weight. In addition, use could be made of locally recruited unskilled workers – which is a goal on many projects in Africa – who were employed to fill the single skin gabion face."

Elaborating on Maccaferri's partnership strategy, Meadows says the company is not referring to ironclad legal agreements. "Our approach is much more relaxed," he explains. "Essentially, when we refer to 'partnerships' we mean informal arrangements with other parties which are to our mutual benefit and which could take many forms – joint marketing or co-operation on training and education, to give just two examples. As I've mentioned, we already have many such arrangements in place but we're keen to develop more."

On the state of the current market, Meadows acknowledges that there has been a dearth of mining work over the past couple of years but says that Maccaferri has nevertheless maintained a healthy workload. "Fortunately, we

are diversified in the sense that we work right across both the mining and civil engineering industries with the bigger part of our workload coming from the civil engineering side," he notes.

Outlining Maccaferri's offering to the mining sector, Meadows says the company is a global leader in the manufacturing and supply of gabions and associated wire mesh products, as well as geosynthetics including geogrids and geocomposites, which singly or in combination can be used in a variety of applications – for example, rockfall protection, retaining wall construction, soil and slope stabilisation, drainage systems and erosion control. "Our manufacturing standards are very high and we have ISO 9001: 2008 and ISO 14001: 2004 certification, and run an Integrated Management System, which

includes BS OHSAS 18001:2007," he states.

Although Maccaferri has been active in South Africa for 60 years, the global Maccaferri operation dates back to the late 1870s, when the company was founded in Italy by Raffaele Maccaferri, credited as the inventor of the modern form of the gabion. Today, the company remains a family-oriented business but is also a true multi-national, with over 70 subsidiaries around the world, manufacturing facilities in a number of countries including South Africa, and a global workforce of nearly 3 000. The South African operation – whose MD is Adriano Gilli – is based in Durban, where a modern production unit covering more than 9 000 m² is located, but also has offices in Johannesburg and Cape Town. It works throughout Africa and has completed contracts as far north as Egypt and Eritrea. ■

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