

# Kobelco, JCB and Finlay provide ideal solutions for alluvial diamond mining



Geologically the Richtersveld is regarded as one of the most interesting and visually stunning geological areas of Southern Africa. It has several geological units deposited over an enormous time span with rocks ranging in age from one to 2 000 million years old, almost half the age of the Earth.

Some of these paler formations are commonly known as calcrete and although of interest to geologists and tourists who enjoy a near-lunar landscape, this material poses real challenges to alluvial diamond miners operating in this area. One such company is Silver Solutions whose owners are working a patch of land some 25km inland of the small coastal hamlet of Alexander Bay, situated where the mouth of the Orange River borders Namibia.

Silver Solutions, established in 2015, is headed up by Derek Corns, a 40-year veteran of the alluvial diamond mining industry as were his father and grandfather before him. Derek has been joined in the business by his two sons, Dylan and Stephen. We met Dylan at their mining site along the banks of the Orange River with the dunes of Namibia clearly visible on the far side of the river.

"We had expected to encounter some hard material when we first moved to this mining site some three months ago and had decided to come prepared with the correct tools for the challenges that lay ahead," Dylan says. "We've found that much of the possible diamond-bearing gravels are contained within conglomerates of calcrete that are almost impossible to break with the bucket on a 40-ton excavator and calls for more specialised equipment," said Dylan.

That specialised equipment has come in the form of a Kobelco SK220XD-10 Excavator fitted with a JCB HM160T Hydraulic Hammer bought from Bell Equipment in Kimberley where Silver Solutions has its head office.

Derek Corns dealt with Bell Sales Representative, Eric van der Merwe, who handled the sale of the Kobelco SK220XD-10 Excavator and says: "We knew we had to have a robust excavator with a decent-sized hydraulic hammer and, while we were happy to buy another brand's used machine with low hours, Eric did a great job of convincing us to acquire the new 22-ton Kobelco with the hydraulic hammer and a bucket at a very competitive price. We're new to the Kobelco range of excavators and look forward to seeing what this machine can do for our operations in the challenging mining areas in the Richtersveld."

"The calcrete we're experiencing is particularly hard and has a glass-like appearance ranging from 200mm to a metre in thickness. Once you've broken through that the diamond-bearing gravels lie underneath it in seams of 2 to 3 metres thick," Derek explains. "Blasting the calcrete won't work for us, which is why we've chosen the JCB Hydraulic Hammer on the Kobelco Excavator."

The Kobelco SK220XD-10 Excavator with its operating mass of 21 800 kg and breakout force of 157kN is considered the ideal carrier for the JCB HM160T Hydraulic Hammer due to its ability to maintain excellent hydraulic flows and pressures.

Bell Equipment is also supplying Silver Solutions with a smaller and more robust rock bucket to add to the standard 1-cubic metre bucket the machine comes equipped with. The Kobelco SK220XD-10 Excavator has been bought with an extended warranty to 4 000 hours on its wet drivetrain and, because of the remote location of the mining site, the Kobelco will be maintained by a contractor based at another mine nearby and working under supervision from Bell Equipment during the warranty period.



**Dylan Corns (Silver Solutions Director) with Theo Greef (Silver Solutions Site Manager) and Abel Riet (Silver Solutions Excavator Operator).**

“Keeping to our mine planning, and once we’ve broken through enough of the calcrete, we’ll swap the hydraulic hammer with whichever bucket we choose to clean out the rock bottoms of the mined-out areas before rehabilitation starts,” Dylan explains. “In terms of our mining licence, and with the strict environmental guidelines that govern our operations, we’ll gladly rehabilitate the mined areas of this pristine area.”

To this end, Silver Solutions stockpiles the topsoil and overburden before actual mining commences and this material is then returned to the mined-out areas by backfilling. This adds to their mining cost but they see it as essential to mining responsibly.

The mined gravel is screened using a Finlay 694+ Triple-deck Screener to screen out the fine sand that hampers production and this process will be enhanced when another Finlay machine, an 883+ Screen, will be used in tandem in 2023. It is expected that with tandem screening, profitable concentrates will be obtained.

“With us being in such a remote area and far away from any large centre, it’s good to know that we have reliable suppliers such as Bell Equipment with enough spares for both the Kobelco and Finlay machines to support us, even if delivery may take a day or two longer than normal,” Dylan says. “These are the reasons why we choose to buy equipment from the likes of Bell Equipment.”

