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Big Pours For Big Trucks

Murray & Roberts Infrastructure, a division of Murray & Roberts Construction, was involved in the civil construction works that support the development of a Heavy Mining Equipment (HME) filling station and two diesel storage tanks at Kumba's Sishen iron ore mine.

Part of Murray & Roberts Construction, the company has a long legacy working on mine-related infrastructure projects in the Northern Cape, South Africa. It became active in the iron ore and manganese mining province as far back as 2005, and has recorded a host of milestones since then.

This includes its involvement in the construction of the HME filling station and the two storage tanks, which will be used by the large Komatsu rigid dump trucks and other massive equipment that load and haul iron ore at Sishen mine.

One of the biggest challenges on this contract was the many interfaces and fast track nature of the project. "We had 10 working faces at any given time on this six month contract," says Murray & Roberts Infrastructure's Tiaan Krugel, who has been involved in managing most of the leading construction company's mining-related contracts in the province.

He says these complexities were overcome by excellent team work. "It took a combined effort from the entire professional team. However, I must note that our client did a fantastic job in managing the works. They were extremely proactive," says Krugel.

One of the highlights of the project was the sheer scale of the concrete works involved in the construction of the massive forecourt of the HME filling station. This 90 metre by 66 metre concrete slab is 600 mm thick to cater for the sheer weight of the mining equipment. A total of 4 800 m³ of concrete was poured on this slab alone, while the entire slab called for the

placement of 570 tons of reinforcing bars. The concrete was batched at 3Q Concrete's plant outside the mine, with between six and eight readymix trucks running to and from the site a day.

Krugel says the biggest pour was 420 m³ in 12 hours. A total of 18 pours were undertaken, with most of them ranging between 200 m³ to 400 m³.

One of the many other faces on the contract was the 1 500 m² diesel and lubrication tank area. Two 12,7 metre ring beams were constructed to support the 1 500 Kl diesel tanks, as well as a 2,5 metre high bund wall on the perimeter of the area.

Complex mix designs were essential to counter the fluctuating temperatures in the province, ranging from zero degrees Celsius in the mornings and gradually peaking at 30°C, before cooling down again.

Krugel says extensive admixtures were needed to keep the concrete workable during the nine to 12 hours that the pours were undertaken.

Works were handed over in October 2015, in time for the other contractors to take over. Jerome Govender, executive chairman of Murray & Roberts Construction, says this project is one of the last the leading construction company has worked on in the Northern Cape before it will mobilise to another project to start working on a new contract. He adds that while the project enjoyed many highlights, he is particularly pleased that the project achieved the company's overall safety objective of Zero Harm in that no lost time injury was experienced.

HME FILLING STATION PIC 01 : The 90 metre by 66 metre concrete slab is 600 mm thick to cater for the sheer weight of the mining equipment.

HME FILLING STATION PIC 02 : Extensive admixtures were needed to keep the concrete workable during the nine to 12 hours that the pours were undertaken.

HME FILLING STATION PIC 03 : The ring beams were constructed to support the 1 500 KI diesel tanks.

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