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ON SITE WITH MAGALIES WATER PROJECT

By Tarren Bolton | All photos by Tarren Bolton

Murray & Dickson (M&D) Construction is on track to complete the first phase of their 30km Moretele South Water pipeline project for Magalies Water — the operations and maintenance of water supply at Moretele Local Municipality.

M&D offers a wide range of construction services, including general building construction; civil engineering construction; pipe laying (in the water as well as oil and gas industries); earthworks and road construction; along with construction plant hire. With a company CIDB grading of 9CE PE, the pipe laying division is able to tender on contracts for the public sector, with clients including mining companies, water utility boards, fuel and gas suppliers, municipalities, and the like.

Plant Equipment & Hire met with the M&D team on site at their current project: the Magalies Water project. It encompasses the construction of the Moretele South Water Supply Scheme, consisting of 30km of bulk steel pipelines and cross-connections to existing infrastructure, to augment water supply to towns in the Moretele South region of the North West Province.

"It's a new pipeline and we are adding to its capacity," says Dirk Steyn, M&D Construction site manager. "We have started from an existing line, then we will bring it all along the N1, go underneath the N1, up to the R101, underneath the R101, through to



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Large side booms are specific to the pipe laying industry.



From left: Thomas Zikhali, machine operator; John Mkwane, M&D Construction operator manager; and Rowan Barnard, M&D Construction plant manager. Thomas Zikhali has 35 years' experience as a machine operator.

Moretele. On the way, we will tie into various existing pipelines in order to increase the supply."

Excavation

Rowan Barnard, head of plant at M&D Construction, explains that the size of the trenches for the pipe diameter, and the design metreage per day quota, necessitates the use of excavators. M&D has built up a plant division that caters to all construction divisions within the group. The company considered it strategically necessary to own sufficient plant to both increase the competitiveness of the various divisions and to ensure an accessible pool of plant to satisfy site needs and requirements.

Certain plant items such as large side booms are specific to the pipe laying industry, but most of the plant owned can be used in general building, earth moving, as well as civil engineering projects. The company constantly upgrades and renews its plant fleet to increase its production output.

"When our plant is not being utilised by the group, it is available for hire to the open market, for selected clients. Items of plant owned include excavators, rollers, front-end loaders, tipper trucks, water trucks, side boom pipe layers, tower cranes, concrete mixing trucks, TLBs, screens, graders, dozers, and mobile cranes — all handled by our plant division," says Barnard. "Equipment we use are majority CAT machines, but we have some Komatsu machines as well. Our tower cranes are Potain and mobile cranes are Terex and Tondano."

Plant equipment is only as good as its operators, and Barnard says that the equipment operators have different skill levels — some operators are accustomed to pipeline excavation, while others are accustomed to bulk excavation. "Pipeline excavation is specialised work; the excavators work in built-up areas, often with little space, and trenches need to be base-even for the laying of the pipes. We tend to put our more skilled and experienced operators on pipeline excavation," he says.

"When it comes to training our operators, we find that what works best is to send younger operators to work with our more experienced and skilled operators, in order to further develop required skills on site. The best training comes from practical, physical learning," Barnard believes.

One of the operators, Thomas Zikhali, has been operating excavation equipment and bulk-handling machinery for 35 years. "Thomas is highly skilled at what he does

and operates the Komatsu PC350 LC Excavator. He operates this equipment exclusively," says Barnard. "This means the PC350 is the machine used exclusively by Thomas. He even has his name on the cab door — something he is extremely proud of," enthuses Barnard. Pride in one's work clearly goes a long way. Barnard says that Thomas is one of their most loyal and reliable members of staff, and never misses a day's work.

Challenges

Interestingly, this kind of loyalty extends to the equipment itself, and most operators are loath to make the change to a new or updated piece of equipment. This brings with it an interesting, but very real challenge, which has to do with the technological advancements in plant equipment. "We find that a lot of operators can't cope with the amazing innovations and technological advancements in the industry. These advancements turn out to be more of a hindrance than an assistance — advanced technology such as an on-board computer, for instance, requires quite a lot of training for the user, and frankly, operators sometimes find it too complex. They are comfortable keeping it simple and are quite averse to change. These operators are very capable, as well as very skilled at their jobs, and don't like, nor see the need for technical changes," explains Barnard.

"It's definitely a challenge for us," he says. "For example, on the new-generation excavators, you can set the parameters for reach, boom lift, depth of the trench, and so on. The problem is, you need a skilled mechanic to operate the computer and set the parameters. Then, the operator will move to a different point of reference and try to lift the boom higher than the set parameter, then finds that there's an 'error' and the machine 'doesn't work' — which means there's a breakdown reported, unnecessarily causing downtime and ultimately costing money.

"We try as far as possible to avoid these kinds of overwhelming or tricky situations with our operators and try to make the transition to new equipment as easy as possible for them. We want to keep everyone happy when doing their job, because ultimately, job satisfaction leads to productivity," says Barnard.

Barnard adds, "Another challenge is that typically on site, you will find some M&D plant, and some plant from local suppliers. Although we have all the plant available in-house, first option is to use a portion of local plant. If the locals don't

have the kit we're looking for, then we'll use our plant available."

Steyn says, "Whenever we need plant equipment, we speak to the project steering committee (PSC), made up of councillors appointed by the council, and the local community liaison officer (CLO), made up of community spokespeople. What makes this project interesting, is that it starts in Tshwane and crosses into Moretele in the north-west — which means that not one, but two local communities are involved. Each community has their own appointed CLO. Each CLO represents the individual community's needs and requirements and therefore each needs to give approval in all matters individually. This means whenever we hire labour, plant equipment, or any other items, it has to go through the individual CLOs, the PSC, and then out to the community. Then only does it come back to us, once all parties have agreed and approved the way forward," says Steyn.

Barnard adds, "Aside from this being time-consuming, it can also get quite

complicated in that there is not one external supplier who will supply five different plant units, but five different suppliers each supplying one piece of equipment. The logistics itself is time-consuming, but it's also understandably not very economical since you end up paying five suppliers, and not just one.

"Stoppages do hamper production, but we have found that the best and quickest course of action is to involve the CLOs and the local municipalities immediately, who assist in solving the problem. A stoppage can be anything from between two to three hours at a time, but we keep record of it," adds Barnard.

Despite the challenges, M&D is on track to complete the project by mid-2020, which will increase capacity to ensure the delivery of services across the water value chain and support the 'source-to-tap' vision. Working closely with the municipalities, M&D will bring efficient water service delivery to the end consumer, communities, and industries served by Magalies Water. 🌱



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Two mobile Mosa welding machines for welding the pipes at their joins. There is a mobile fleet of 18 welding machines used mainly on site.