BRIDGING THE DIVIDE in Ga-Ntata

A highly-anticipated bridge construction programme promises to bring critical relief to poor rural communities in Limpopo's Mopani District.

The two new all-weather structures are being built on roads D3212 and D3213 at Ga-Ntata. They will replace an inadequate crossing over the Molototsi River that left people stranded for days on end during high rainfall periods before it collapsed in late 2016 as a result of heavy flooding in the area.

This intervention is being driven by the Roads Agency of Limpopo (RAL), which has appointed engineering firm, Nyeleti Consulting, and Axton Matrix, the main contractor, to help deliver the infrastructure.

Corestruc and Coreslab join the team of professionals, and are tasked with manufacturing and installing the high quality bridge beams that form part of the superstructures.

Corestruc has earned a solid reputation in the South African construction industry for being a leading designer and builder of pre-cast concrete structures, ranging from complex civil infrastructure through to luxury private property developments.

Both companies' bridge beams are associated with a number of milestone projects, for which they have manufactured and installed all types of M, I and F-type bridge barriers, or parapets, since their participation in the Lawton Bridge build in Polokwane.

Their teams arrived at Ga-Ntata earlier this year to start surveying activities once Axton Matrix had completed the abutments and piers, and installed the bearing pads upon which the bridge beams rest.

This ensured accurate alignment and rapid installation of the high quality inverted I-beams.

Corestruc's Russell Hobbs says that a total of 86 items were manufactured at Corestruc and Coreslab's state-of-the art batching plant in Limpopo and installed at the two construction faces.

"A total of 48 precast concrete beams were manufactured and placed to support the deck of the main 96 m-long structure and 48 were installed at the other 76 m-long bridge. Most of the bridge beams are 24 m long with some 27 m, and they vary between 50 MPa and 60 MPa," he says.

Based on Nyeleti Consulting's design requirements, the elements were pre-formed with holes through which transverse reinforcement has been installed to brace the structures. The main contractor then fills the spaces between each pre-cast concrete unit to produce a robust concrete slab.

The consulting engineer also specified an extremely slender profile for the bridge beams, and Hobbs says this was achieved by paying meticulous attention to the detail of the design of the pre-stressed cables prior to manufacturing.

However, RAL is not only relying on the companies' solid track-record in pre-cast bridge beam manufacture and installation, but also heavily upon Corestruc and Coreslab's logistical planning capabilities to ensure the project stays on its critical path.

This expertise remains yet another major value proposition that the companies bring to all of their projects, considering that many of them are situated in remote and inaccessible areas, or where space is at a premium.

These skills have ensured the timely delivery of the pre-cast concrete beams to this remote site, with the project relying heavily on in-house technologies that were developed to improve the delivery and handling of these heavy items.

A bespoke dolly-bogie system is used to transport the items to site and offloading is undertaken using a special a side loader.

The latter system has done away with the need for two mobile cranes just to offload and place each item at the laydown stations, with cranes only deployed in the actual installation phases.

Corestruc and Coreslab's impressive production rate on site certainly mirrors the success of this approach.

"Using a 160 ton crane, the largest unit in our mobile crane fleet, we were able to maintain a steady production rate by placing up to six beams a day. However, we have almost doubled production at other related projects using this method, where site conditions have been much more favourable," he says.

It is clear why both companies remain closely associated with so many social development projects in Limpopo, and Hobbs looks forward to continued involvement in more construction activity in a province that is in dire need of infrastructure.

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