

FOR IMMEDIATE RELEASE

Widening Of Bridges At Hopetown

Upington-based contractors Botes & Kennedy Manyano are progressing well with the widening of the 312 metre bridge on the N12 carriageway over the Orange River at Hopetown in the Northern Cape.

The substantial project is consuming 4,000 cubic metres of concrete and 500 tonnes of reinforcing steel, with about 28,000 bags of AfriSam High Strength Cement (CEM II A-M (L) 52.5N) being delivered from AfriSam's Ulco factory near Barkley West.

AfriSam also designed a range of concrete mixes for the project to ensure optimal durability and certain workability requirements. This was done at its Centre of Product Excellence in Roodepoort which includes SANAS accredited laboratories.

The R88-million South African National Roads Agency SOC Ltd (SANRAL) project began in mid-2016 and is on track for completion by the end of February next year. It also includes a smaller bridge being widened a short distance to the north.

"This improvement will allow a widening of the road with a 2,5 metre shoulder on either side, as well as a dedicated asphalt surfaced pedestrian walkway along the eastern side, protected from the traffic by a concrete balustrade," says Botes & Kennedy Manyano contract manager Deon Douglas.

The main bridge is a twelve span, simply supported structure constructed with precast pre-stressed I-beams. It comprises 11 concrete piers, each measuring some 12 metres in height, between a north and a south abutment. The road widening project requires new piers to be built alongside the existing ones and to similar dimensions.

The concrete mixes for the project included designs for 15 MPa, 30 MPa, 40 MPa and 50 MPa, according to Brendan Croney, technical consultant at AfriSam's Centre of Product Excellence (CPE).

“Our concrete mix designs needed to meet SANRAL’s specification of a performance-based concrete, both in term of standard concretes and the ‘W’ concretes that must meet certain durability indices for oxygen permeability, sorptivity and chloride conductivity,” says Croney.

Almost 9,700 square metres of formwork was used in the construction of the 11 new piers, nine of which had been completed by August 2017.

The new abutments on the north and south banks of the river needed considerable earthworks to be done, according to Botes & Kennedy Manyano site agent Jeann van Tonder. At each abutment, 13 piles were drilled to an average depth of about 10 metres and socketed into bedrock.

“Before work could begin on the new piers, a causeway had to be constructed out into the river so that mass concrete bases could be poured, onto which a 1,7 metre deep concrete base could be constructed for each new pier,” says Van Tonder.

The piers were then cast in three lifts of 3,6 metres each and a final 1,5 metre lift. Concrete was poured from the causeway utilising a crane and concrete buckets.

The 12 spans for the new part of the bridge are created by 60 concrete I-beams, each measuring 26 metres long, with straight horizontal alignment and flat vertical alignment. The beams rest on elastomeric bearings on top of the piers. To complete the contract, the contractor will build a new road, laying down new sub base layers and a Cape Seal.

WIDENING PIC 01 : The Botes & Kennedy Manyano project to widen the Hopetown bridge (B2482) crossing the Orange River is currently underway using performance-based concrete designed by AfriSam.

WIDENING PIC 02 : AfriSam is supplying 28 000 bags of 50 kg High Strength Cement from its Ulco plant, 200 kilometres from the site.

WIDENING PIC 03 : AfriSam also designed a range of concrete mixes for the project to ensure optimal durability and certain workability requirements at their Centre of Product Excellence, SANAS accredited laboratories based in Roodepoort.

ENDS ... SEPTEMBER 2017

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