ENGINEERING NEWS
11 Nov 2011, p.78

Construction company bridges gap in roads upgrade project

Concrete coring, sawing and scanning group QA Coring says it has become the first company in South Africa to use diamond tool technology to drill through three concrete bridges, allowing the structures to be linked together by contractors using reinforcing steel bars.

The five-week project, which formed part of the Gauteng Freeway Improvement Project, was completed in August this year, and involved the drilling of a total of 560 holes, each measuring 32 mm in diameter and 2 m in depth, into the bridges located along the Rietfontein interchange, in Gauteng, where the R21 and N12 freeways cross.

Owing to the complexity of the project, which involved drilling the holes at angles of between 23° and 30°, the company required a range of barrels measuring up to 3 m in length.

ANGLED ENTRY
A total of 560 holes were drilled to allow the three bridges to be linked by reinforced steel bars

DIAMOND TECHNOLOGY
Custom-built core barrels consisting of hollow 40-mm-diameter steel tubes were fitted with diamond segments at the front cutting edge of the tool to secure the bridges

Diamond Products director **Darryl Gray** explains that the company supplied a number of core barrels to QA Coring in a variety of lengths ranging between 450 mm and 3 m.

"The custom-built core barrels consist of hollow 40-mm-diameter steel tubes that were fitted with diamond segments at the front cutting edge of the tool.

"This enabled the barrels to drill neatly through the concrete when rotated using the Hilti DC 350 and DC 200 electric diamond core drilling machines, which feed water through the centre of the core barrel," he says.

QA Coring MD **Henry Dippenaar** reports that the company drilled the required number of holes without any major setbacks, which will ultimately enable the contractor

Life is like dancing. If we have a big floor, many people will dance. Some will get angry when the rhythm changes. But life is changing all the time.

ENGINEERING NEWS
11 Nov 2011, p.79

to link the bridges by splicing the reinforcing steel bars.

This will increase the strength of the structure and evenly distribute the weight of the vehicles that will be moving over the bridge.

Dippenaar admits that the unusual drilling angle resulted in an increased amount of wear on the core barrels, but says Diamond Products replaced and retipped the diamond segments on a regular basis throughout the project.

"During the drilling process, we had to use the deck of the bridge to anchor the drill, and then swing the drill stand to secure it at the required angle of between 23° and 30°," he continues.

Dippenaar says that there is considerable room for growth for the company following the successful completion of this project.

ENGINEERING NEWS COUPON ON PAGE 96 E239228