



## RUFJI PERMANENT BRIDGE FOR JNHPP Tanzania



### Project Facts

#### Product

Temporary Cased Bored Piles

#### Market

Infrastructure

#### Client

TANESCO - (Tanzania Electric Supply Company Limited)

#### Main Contractor

The Arab Contractors / Elsewedy Electric JV (ACEE JV)

#### Achievements

- Installation of 82 No 1200 mm Ø Temporary cased bored piles, in hard rock, b/w 12m and 29m deep, using rock augers, coring buckets & chisels.
- Piles had to be cast early morning or at night, due to very hot and wet climate.
- The bridge site is located in a remote part of the country, two powerful Bauer BG28 piling rigs were mobilized to site by railway.

#### About the project

Piling to two piers and two abutments for a new permanent bridge across the Rufiji River, Stiegler's Gorge, Tanzania. The bridge is part of the access road to the Julius Nyerere Hydro Power Project (JNHPP) currently being built. The underlying soil profile at each pier position revealed a combination of hard sandstone and softer mudstone rock layers, with the usual silty gravels, colluvium, clay, and boulders, common in river beds, thus piling was required to support the bridge piers and abutments.

#### Challenges

Due to the extremely hard sandstone layers, specialised rock drilling equipment was deployed to excavate the rock to depths of 29m. Due to the upper soil profile and the high water table, temporary steel casings were used to ensure the integrity of the pile shaft. The piles had to be cast underwater, at night, using a gravity fed tremie pipe system. The high slump, self-compacting concrete mix was transported to the pile positions using traditional ready-mix trucks.

#### The solution

The pile design called for a total of 82 piles, 62 in the two piers and 20 piles in the abutments, each pile was 1 200 mm in diameter. The piles were designed to carry a working load of 9,5 MN. Piles tested using Dynamic Load Test Method.