

## A key project in the Eastern Cape



In the heart of the Eastern Cape, the King William's Town Bulk Sewerage Scheme upgrade project will have a significant impact on the lives of thousands when completed.

Consulting engineering company GIBB is currently involved in numerous challenging projects throughout the Eastern Cape, from the King William's Town Bulk Regional Sewerage Scheme to the East London Industrial Development Zone waste sorting facility and the Cofimvaba Rural Electrification Turnkey Project. In King William's Town, four wastewater works currently serve the area and these plants vary from oxidation ponds to conventional trickling filters. In some cases, these works have reached the end of their design life and are therefore not able to meet the required final effluent standards. GIBB has

been involved in strategic planning and financial evaluation of the scheme from its inception some years ago.

According to Dave Clark, project director at GIBB, "Our involvement in the King William's Town Bulk Regional Sewerage Scheme is of particular significance because of health and safety requirements. Our objective is to create a consolidated regional network with a treatment facility at Zwelitsha that will serve the entire area." The existing Zwelitsha works will eventually be upgraded to a 35 Mℓ/d plant.

### A FIVE-PHASE PROJECT

The King William's Town Bulk Regional Sewerage Scheme is divided into five phases spread over a number of years, and the total cost of the project is estimated at approximately R400 million. Phase 1 sees the construction of a 7 km-long bulk outfall sewer from the existing works at Schornville, to the Zwelitsha works. Phase 2 comprises the upgrade of the Zwelitsha works to a 17.5 Mℓ/d activated sludge plant. Once this extra capacity has been



# WATER & SANITATION AFRICA  
01 Jan 2011  
Page : 21 #



Aerial view of the existing Zwelitsha Wastewater Treatment Works

created, the area of Breidbach will be connected to the scheme in phase 3. Following on from this, phase 4 will incorporate the sewage from the Bhisho area into the scheme, via a 12 km bulk outfall. Finally, in phase 5, the treatment works will be upgraded to a 35 Mℓ/d capacity, to allow for the planned future growth of the area.

#### CHALLENGES

"Aspects that have been particularly challenging with regard to this project include the widespread location of the existing small works, difficult terrain conditions and the new sludge handling requirements issued by the Department of Water Affairs,"

comments Clark. "These guidelines state that all sludge handling options must be investigated, and if all other options have proven unsuitable, only then is the dumping of dried sludge on a landfill allowed."

#### **The King William's Town project is positive and will deliver sustainable results**

The works will generate 6 to 8 t of sludge per day at full flow capacity. Various sludge handling options are being investigated in order to determine the most economical

#### Key features:

Total Project Value: R350 million

GIBB sectors involved:

- Civil engineering
- Structural engineering
- Electrical building services
- Mechanical engineering
- Process design

20 km of large diameter gravity outfall sewers

Pump station and rising main

35 Mℓ/day activated sludge sewage treatment works

EIA considerations affecting design

Water use license applications

and sustainable solution. The decommissioning of ineffective and overloaded treatment works will contribute towards the overall improvement of water quality within the Buffalo River system. The water treatment works is situated downstream of the wastewater treatment works. By improving the treated effluent quality, the clear water system will also benefit.

"The King William's Town project is a positive one and will hopefully deliver sustainable results," concludes Clark. "We have consulted with the community, considered them in the process and in the long term the completion of this project will unlock development, particularly in the housing sector."

GIBB will take this project further to complete the detailed design and facilitate the implementation of it.

The completed project up to commissioning should take between four and six years. 35

