GAMTOOS AND SUMMIT PUMP STATION

SUMMARY OF WORKS	
Type of Works	Pump Station
Location of Works	Eastern Cape
Size of Works (Mℓ/D)	75 ML/D
Date of Award	18 May 2009
Date Completed	4 July 2013
Completion Value (Including VAT)	R 26 000 000.00
Client	Nelson Mandela Bay Municipality
Conditions of Contract	GCC 2004

The Nelson Mandela Bay Municipality is situated in the Eastern Cape Province of South Africa. Rising up from the shores of Algoa Bay on the south eastern coastline, this metropolitan area incorporates the city of Port Elizabeth, and the nearby towns of Uitenhage and Despatch as well as the surrounding rural areas. The estimated population of the Nelson Mandela Bay Metropolitan area is 1, 5 million, making it South Africa's 5th largest Metro in terms of population and 2nd largest in terms of area.

The catchment area for the Churchill scheme falls within the Joubertina / Kareedouw area approximately 140 km from Port Elizabeth. It incorporates two water treatment plants namely, the Churchill Water Treatment Works (WTW) at the Churchill Dam and the Elandsjagt WTW at the Impofu Dam with a combined maximum treatment capacity of 210Ml/d. Both dams are situated in the Kromme Rivier and are in excess of 100km from Port Elizabeth.

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From these two facilities approximately 90Ml/d can be supplied to Port Elizabeth by gravity flow with an additional 75Ml/day available with pumped assistance. The balance of treated water is supplied to towns along the pipeline route such as St Francis Bay, Humansdorp and Jeffreys Bay.

The objective of the project was to create an autonomous pump station to automatically boost the flow of water along the Churchill line based on the water demand within the city and also to transfer surplus water on an ad hoc basis to the Summit Reservoir in the Loerie supply scheme. The pump station was to be designed to operate either independently through complete automation and telemetry or be available for emergency manual operator start-up.

The new pump station consists of two separate pumping systems totaling seven (7) pumps. The Gamtoos booster pump station comprising four (4) variable speed horizontal split case booster pumps. This function is fully automated and as water levels and pressures in the distribution system drop the pumps come online and control automatically. The Summit pump station comprise three (3) high pressure multi-stage pumps to transfer water to the Summit reservoir in the Loerie supply scheme.

In order to ensure ultimate reliability and achieve a 'manner' of redundancy, each pump set is independently supplied with dedicated 22kV switchgear, dry-type transformer, variable speed drive and PLC.

The main equipment specification is as follows:

Gamtoos pumps - Four x KSB Omega 350-510 pumps fitted complete with 450KW, 400V motors

Summit pumps - Three x KSB WL 200/5 pumps fitted complete with 400KW, 400V motors

Medium voltage switchgear – Ten x Schneider Electrics RM6 Switchgear

Transformers – Seven x 630kVA Schneider dry-type transformers

Control is achieved through Altivar 61 variable speed drives and Modicon M340 PLC's

The project awarded value was approximately R26 Million Rand inclusive of VAT.