

Mamelodi outfall sewer and tunnel in Tshwane

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The existing outfall-sewer system of the City of Tshwane needs to be urgently augmented due to structural and capacity-related problems. This project, which forms part of the City of Tshwane Long Term Sanitation Masterplan has recently commenced.

The high-density developments in Mamelodi, Nelmapius and the rest of the drainage area to the east of Pretoria, have exacerbated the capacity constraints especially in the section of the outfall sewer between Moretele Park and the Baviaanspoort Water Care Works.

The older part of the system is more than 40 years old and thus near the end of its expected life span. CCTV inspections of the pipeline revealed internal corrosion and scour damage.

The augmentation of the Pienaars River outfall sewer: Mamelodi, involves the construction of a concrete-lined 2.7 m ID horseshoe shaped tunnel with a length of approximately 770 metres, through the Magaliesberg from Mamelodi to the Baviaanspoort Water Care Works, together with all the related tunnel portal structures. This phase commenced in June 2005 and is expected to be completed in 20 months. In addition to approximately 4 561 metres of 1 650 mm diameter, 267 metres of 1 500 mm diameter and 195 metres of 1 800 mm diameter outfall-sewer pipes, the project entails the construction of two pipe bridges over the Pienaars River; pipe-jacked crossings underneath a railway line and a road; three concrete junction boxes and a diversion structure. The sewer system has been designed to provide a capacity of 6 m³/sec with provision for a future upgrade to 12 m³/sec.

The tunnel will have sufficient capacity for sewage flow from the total Pienaars River drainage area. The augmented outfall-sewer system will make provision for the additional flow from the Swavelpoort and adjacent areas of the upper Pienaars River drainage area.

Updates on this project will appear in future newsletters.



The northern approach to the tunnel after clearing. Drilling is in progress for surface blasting for the approach and the north portal