

Upgrades in Eastern Cape under way



THE AREA OF KIRKWOOD, located in the southern part of the Eastern Cape Province, has recently come under the spotlight with the Moses Mabida project.

Moses Mabida lies approximately 3,5 km from Kirkwood's central business district along the Enon Road and is located within the Sundays River Valley municipal area.

'The residential area of Moses Mabida is currently operating on self-constructed pit-latrines. This system is subject to pollution and is extremely unhygienic. The large number of pit-latrines in use has also identified the possibility of epidemic threats like cholera that could occur. Another concern is that the subsurface conditions in Kirkwood are not suitable for the installation of a sanitary system which relies on a septic tank since the soil is not sufficiently pervious. The effluent from pit-latrines will contaminate ground water, which will in turn surface in adjacent rivers,' explains Jeffares & Green Design Technician Gerald Smith.

According to Smith, the Kirkwood area is situated in the southern temperate climate zone where moderate to fairly harsh conditions prevail. Rainfall is about 400 mm per annum, falling throughout the year. Undeveloped vegetation in the area consists of sparse valley bush with some fruit orchards found along the bulk sewage pipeline route. In areas where dwellings have been constructed the vegetation has been cleared.

'To alleviate the raw sewage flow problems from Kirkwood, Moses Mabida and Emsengeni, Jeffares & Green Consulting Engineers was commissioned to construct a new wastewater treatment works (WWTW). We made extensive use of infrastructure design software Civil Designer during the sewer design and erf connection analysis on the project,' notes Gerald.

The existing residential area of Moses Mabida comprises about 1 500 occupied erven with nearly all of them fully reticulated with a water standpipe on every erf. Informal settlement has taken place within the area resulting in some 230 additional erven within Moses Mabida. Many of the existing houses in Moses Mabida are occupied by more than one family with some erven containing more than one dwelling.

'These conditions have led to VIP toilets being constructed, but has however resulted in pollution of the subsurface water. Consequently, there is a need for the development of appropriate sanitation to be provided in Moses Mabida,' says Gerald.

The aim of the Moses Mabida project is to provide waterborne sanitation facilities to approximately 1 730 erven in the residential areas of Kirkwood, Moses Mabida and Emsengeni. This will ensure that imbalances with respect to the sanitation facilities in Moses Mabida are addressed. This will also reduce the health hazards associated with pit-latrine sanitation systems. The operation and maintenance of a single sewage system in Moses Mabida is

therefore assured.

The full scope of the Moses Mabida project consists of the construction of toilets, sewer reticulation, minor water supply facilities and related sewer connections with outfall sewers from Moses Mabida forming part of the project. Toilet structures built on each site consists of a raft foundation cast in situ with a concrete block structure while the sewer reticulation consists of about 30 000 m of 100 mm and 20 000 m of 160 mm diameter UPVC pipes.

The project has been broken down into five phases as a result of its scope and the considerable amount of funds required to complete the venture. Phase I consists of the outfall sewer pipeline from Moses Mabida to the WWTW as well as the upgrade of 70 erven, with Phase II involving the upgrade of some 380 erven, Phase III of about 375 erven, Phase IV of about 400 erven, and Phase V of some 505 serviced erven.

The project forms part of the IDP which has been drawn up for the Sundays River Valley Municipality. All building and related structures of the WWTW has now been completed with the works in operation. The full works will however not be fully utilised unless sewers to some 1 730 erven currently served by a pit-latrine sanitation system are installed. Finalisation for municipal funding for converting all 1 730 households to waterborne sanitation is currently being finalised. □

Source:

http://www.saice.org.za/downloads/monthly_publications/2007/CivilOct2007/#/0