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Before (pic 1) and after (pic 2) trenchless
pipe replacement.



Trenchless Technology company ready to assist government

To avert a water crisis in this country government needs to take quick action to assess the extent of the challenge at hand and begin to address problems before the situation gets out of hand. If reports and findings by industry experts are accurate, then the combined skills, technologies and experience of the water and sanitation industries should be spanned together in order to create an action plan that can be adopted by all tiers of government and implemented through municipalities and the private sector.

Marco Camarda manager of Trenchless Technologies cc believes that three fundamental reasons are at the core of our water and sanitation problems – obtaining funding, a lack of public sector expertise and the use of old technology.

He continues that water and sewer systems are buried, and an “out of site out of mind” philosophy has been applied for too long, with far too little forward planning and maintenance strategies being applied.

A lack of adequate maintenance over the past 20 years means that South Africa has a considerable backlog. When one considers that our pipes were originally designed for a 50 year

useable life, it means that every year at least 2% of our infrastructure should be replaced. This has not been the case, and up to 20 % of the water and sanitation systems in the country are in need of urgent attention. Growing urban populations are adding further strain to the already overburdened system.

Far from being a unique situation that the country finds itself in, it is a global problem for countries with old established water and wastewater system. For example the United States has earmarked \$500 billion (R4 trillion) for renewal of its water and sewer infrastructure, which has also been overlooked over the years.

The uptake of Trenchless Technology in South Africa has relied on the fact that in urban areas trenchless techniques offer direct cost savings in installation costs when compared to trenching methods. For example pipecracking to install HDPE to replace water and sewer pipes offers cost savings of up to 20% when compared to conventional methods. Additionally pipe-cracking can also up-size the existing pipeline where the pipe is under capacity and needs to be increased in size. The technology does not cause damage to other infrastructure such as roads and sidewalks, and when one adds back the social cost advantages of minimal

disruption, reduced construction times and safer use in urban environments where most infrastructure is located, it is not surprising that many pro-active municipalities are applying trenchless technology to their rehabilitation programmes.

Studies conducted around the globe are also indicating that social costs cannot be ignored, and often cost society more than the actual cost to install the pipe.

Our technology has improved significantly and today when working in highly trafficked areas, and on deep sewer lines, no-dig systems such as Cured-In-Place-Piping (CIPP) and RibLoc can be used from manhole to manhole eliminating most, if not all digging required. For example CIPP uses a fibre glass sock impregnated with resin that is pulled in from manhole to manhole, inflated and allowed to cure to form a close-fit lining. The laterals are then reinstated by robot cutter from within the cured liner. Rib-loc Expanda allows you to wind your own uPVC pipe into the old sewer from a manhole and then expand the new pipe to be a close fit within the existing pipe for pipes up to 750 diameter. RibLoc Rotoloc enables one to form a new uPVC close fit lining in pipes of 800 to 1800 diameter. Whilst Ribloc Ribline uses an HDPE reinforced profile for pipes 400 to 3000mm diameter.

Other sewer rehabilitation methods involve eating the old pipe and installing larger replacement pipes using microtunnelling and directional drilling methods.

We also use directional drilling and earth piercing (or moling) extensively to install new pipes beneath road and railways in diameters from 20mm up to 800mm. We are able to undertake installations and steer through rock of up to 60Mpa.

“Trenchless technology offers a number of advanced techniques that can and should be used in our efforts to ensure high quality water and sanitation services and avoid a similar situation as the recent power crisis,” concludes Camarda.

Trenchless Technologies cc is a leading proponent of trenchless solutions in South Africa. It has carried out work in many municipalities and has played a significant part in promoting the technology. The company was established in 1991, and has, to date, successfully installed over 220 000 m of trenchless pipe country-wide for municipalities, contractors, large industrial corporations and mines.

Trenchless Technologies cc is the southern African agent for the Terra Hammer range of Trenchless pipe laying equipment, including directional drills, moles, pipe rammers, and pipecracking equipment. Trenchless Technologies cc's co-owners Sagee Moodley, Jose Barbosa and Sam Efrat have some 60 years of combined experience in the industry.

Current projects include:

- R 8 million - Klipspruit 5000 m of sewer pipecracking and CIPP
- R 6 million - FIFA Phase One 3000 m sewer pipecracking and directional drilling 150 up to 450 mm
- R 14 million - ABSA Campus Sleeves Reticulation; directional drilling of 80 No sleeves up to 560mm diameter for gas, chilled water and electricity
- R 23 million City of Tshwane 40 000 m of pipecracking, CIPP and Ribloc Expanda



Preparation of Expanda winding cage.



The super silent Terra-Jet 7520 D in action.

- R 5 million Kyalami 4500 m of pipecracking, CIPP and directional drilling
- R 7 million Kibler Park 2500 m of water pipecracking 110 up to 315 mm.

Awards include:

- The SAICE Pretoria Branch award For Technical Excellence in 2000, along with The City of Tshwane and consultants Bigen Africa, for the rehabilitation of sewers in Mamelodi.
- The South African Society for Trenchless Technology (SASTT) Award of Excellence for 2007, along with Johannesburg Water and Consultants Vela VKE for the rehabilitation of sewers in Klipspruit Basin. ■