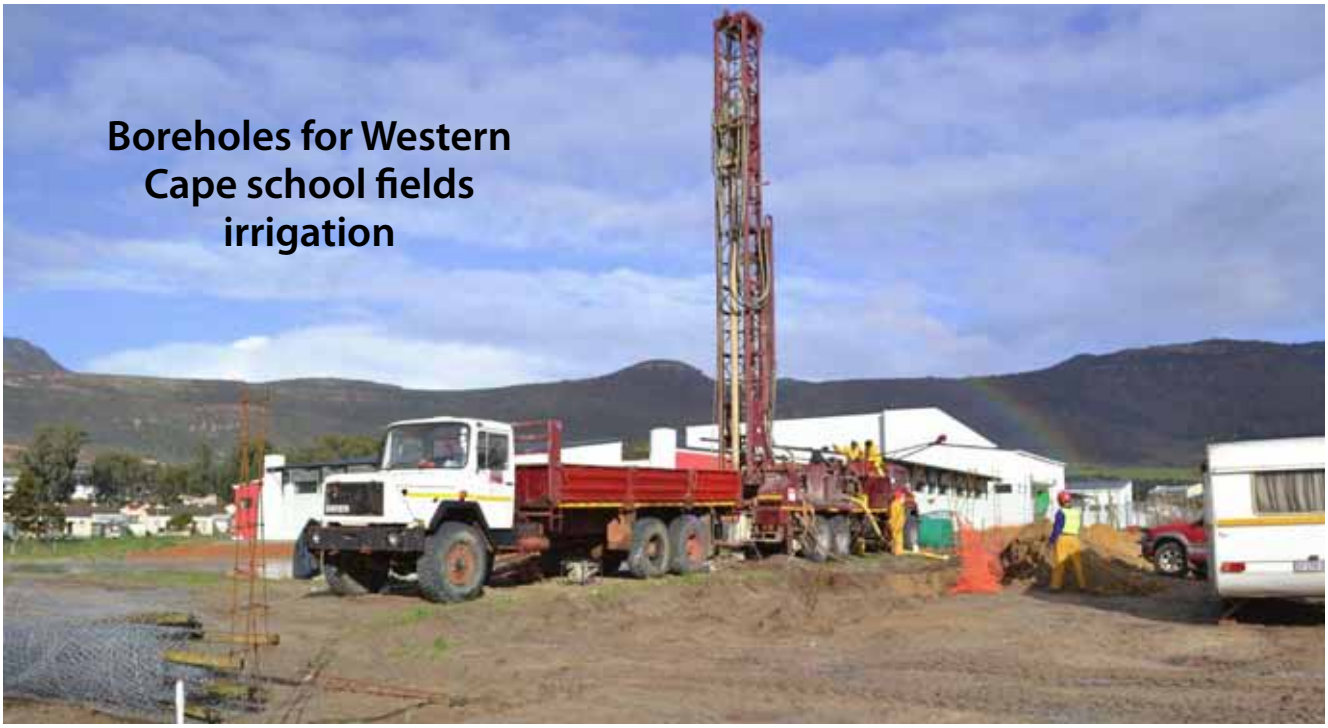

Boreholes for Western Cape school fields irrigation

As part of efforts by the Department of Transport and Public Works in the Western Cape to reduce the amount of water abstracted from rivers and dams, groundwater resources are being investigated as a means of irrigating sports field and other open spaces at newly built schools in the province.

Consulting engineers and scientists, SRK Consulting, has carried out feasibility studies for 15 new schools in the region to establish whether enough groundwater is available for this purpose. According to Leon Groenewald, principal hydrogeologist at SRK, the firm has carried out feasibility studies for 15 new schools in the region to establish whether enough groundwater is available for this purpose. "Once this is done, we will be in a position to make recommendations about how much water can be sustainably abstracted."

According to Groenewald, eight out of the nine boreholes drilled at the time of writing had sufficient water for irrigation; the sustainable yields of the boreholes range from about 0,83 ℓ/s to about 8,3 ℓ/s. While the initial costs of developing the infrastructure to abstract groundwater is fairly high, about R180 000 to drill each borehole – test the water and install the pump – this is cheaper in the long run than tapping into municipal water for irrigating large areas.

To ensure the highest chance of striking groundwater, it is vital that the investigation includes a hydro census and detailed geophysical survey before drilling begins," said Groenewald. "It is essential that the person interpreting the data from the investigation has experience in these kinds of projects, so that we avoid drilling dry boreholes."

The groundwater investigation is completed in the early stages of the contract so that the yield of the borehole can be assessed, in order to determine the water requirements of the playing fields which if higher than the actual supply, causes a problem. "This problem can be overcome by installing a number of storage tanks," noted Groenewald. "The tanks are filled during the night and drained during the day by the irrigation system, which allows the quantity of water extracted per day to be measured at no more than 20 000 ℓ."

Apart from alleviating the pressure on dams to supply water to these schools, the schools' green areas provide a calming atmosphere and restful surroundings for the learners to relax and talk to one another and to play games. It also improves the aesthetic look of the surrounding suburbs which are often characterised by dull, sandy scenery and helps prevent wind erosion.

Young guns select earth sciences consultancy for top professional training

Specialist earth sciences consultancy, Umvoto Africa, has been selected as the best company in South Africa in southern Africa for your water professionals to develop their skills.

The company, which has around 20 full-time staff as well as four interns, competed successfully against much larger organisations to receive this prestigious award from the Water Institute of Southern Africa (WISA). The 2012 South African Young Water Professionals Development Award was announced at the WISA biennial conference in Cape Town earlier this year.

Among the initiatives that contributed to the award were Umvoto's intern programme, initiated in 2002 to offer practical work experience and academic and professional training to students. To date, 52 interns from Africa and abroad have worked at Umvoto for periods ranging from a few weeks to up to six months.

"Umvoto believes that technical knowledge alone is not enough to guarantee a professional contribution in a chosen field," reports MD Rowena Hay, who founded the consultancy 20 years ago. "Most school leavers and graduates

are not adequately skilled, technically or socially, to enter the workplace and make a positive contribution to the organisation and society. Umvoto's experience has shown that the importance of business and project management skills, together with ethics, personal and project financial management, are fundamental for scientists if they are to contribute meaningfully and effectively at the science-society interface."

In the photograph, young water management engineer Len von Scherenberg shows off the professional development award from WISA.

Consultants body opposes call for State-owned construction company

Consulting Engineers South Africa (CESA) has expressed its opposition to the call by Minister Tokyo Sexwale to create a State-owned construction company.

Speaking on behalf of their 470 member firms, CESA President, Naren Bhojaram, stated that the State should not set up structures in competition with the private sector. "They should be creating a platform and a conducive environment for the private sector to excel."

He contended that this is what will grow the economy and create jobs. "We already have too much political interference in public tenders, whether direct or indirect."

CESA also strongly disagrees with President Jacob Zuma's statements in a recently parliamentary debate where he lends support to politicians being involved in private companies. According to CESA, it finds this practice fundamentally compromising and lacking in transparency.

Bhojaram believes that the State should focus on its priorities, including the following for the built environment sector: ensuring that experienced technical staff is brought back into government to manage infrastructure projects; sorting out corruption; sorting out the procurement process in the built environment sector generally, but specifically for professional service providers, by recognising quality or functionality as essential; and inviting the private sector to come up with innovative ideas for infrastructure development by recognising and streamlining the unsolicited bid and public-private partnership process.

Source: CESA

KZN wastewater works boasts improved hydraulic efficiency

SSI Engineers and Environmental Consultants have completed a contract for the eThekwini Water and Sanitation Department to optimise the hydraulic efficiency of the Amanzimtoti Wastewater Treatment Works (WWTW).

The project was initiated in the wake of several large new commercial developments in the catchment area. In addition to accommodating the increased flow, a major benefit is a significant improvement of the quality of the effluent discharged into the eZimbokodweni River, particularly during peak wet weather conditions.

Modifications to the plant presented an opportunity to include a pilot project to determine the viability of enhanced methane generation based on the co-digestion of high strength toxic waste with sewage sludge. This involved the replacement and upgrading of various electrical panels and control equipment and for the construction of the necessary plant and equipment to accommodate the pilot project.

The pilot study is a collaborative venture undertaken by the municipality and the Pollution Research Group from the Chemical Engineering Department of KwaZulu-Natal with funding from the Water Research Commission.

SSI's Gordon Druce, who managed the design, tender and construction stages of the project, explained that the existing plant was not operating at its hydraulic capacity primarily due to design limitations and the configuration of various sections of the plant, which restricted the overall process capability of the plant.

"The improvements that were implemented enhanced the hydraulic efficiency through the works with improved flow division and settling capacity. Similarly, the activated sludge treatment process has been enhanced through the elimination of short-circuiting and the improvement in the uniform distribution of flow into the parallel lanes of the aeration tanks," noted Druce.

The project involved the construction of an additional inlet channel at the head of the works, extensions to various flow division structures, new inlet launders to the existing aeration tanks and the augmentation and upgrading of some existing pipework and new interconnecting pipework on both the east and west plants. In addition, new structures on the east plant include a primary settlement tank, a mixed liquor flow division chamber and two secondary clarifiers.

Construction work took place within the confines of an operating treatment works, presenting the consulting firm and the contractor, Icon Construction, with the complexities of having to design and construct new structures and interconnecting pipework in and around existing infrastructure and services, while minimising the impact on the routine operation of the works. Pre-planned short duration shut downs of various components took place to facilitate tie-ins and connections.

"The contractor had to plan and execute cut-ins into the existing system and ensure that spillages were avoided or limited to amounts that are manageable through temporary containment on site, thus preventing any possible environmental infringements," said Druce. "Also challenging was the fact that, with new construction work required in and around existing services, many old and relatively fragile asbestos cement pipes needed to be exposed by hand to prove their positions and levels and, in many instances, supported and protected during excavation."