

PUMP STATION SECURITY

Pre-planning results in a complete solution

After being seriously vandalised, the Boiketlo sewage pump station is now one of the most secure in the land.

AFTER VANDALS stripped a pump station in a remote area on the outskirts of the West Rand of Johannesburg, resulting in undesirable spillages at a significant cost to the municipality, urgent interventions were required. This was not the first time that the Boiketlo sewage pump station had been broken into and its contents and equipment removed, including the pumps, pipes, control panel cables and even the fence. The municipality lost several hundred thousand rand in technology and equipment. In addition, the inconvenience and effects of having non-operating infrastructure meant that a viable solution was needed. The municipality chose Tecroveer to design and build a highly secure solution, which has resulted in one of the most secure structures in the country. The project was undertaken during 2012 and the construction of the new pump house was completed over a three-month period, as soon as the necessary approvals were received.

Boiketlo is situated within the Mogale City Local Municipality. Known as the City of Human Origin, Mogale City is one of three local municipalities that form part of the supply area of the greater West Rand District Management area. Wimpie Olivier, project manager at Tecroveer, explains the client's requirements at the outset: "It was necessary to move away from the traditional pump station approach, because of the remote location of the site, and the requirements were that the pump station had to be vandal/thief-proof to protect the assets of the local municipality.

It was important that the control panel for the equipment remained secure. In addition, as a result of us not wanting to make use of submersible pumps, the new pump station could not be kept below ground level, as was the former pump station."

Design and building phases

The client's needs and requirements were well documented and incorporated into a simple design. This formed the basis of a preliminary design that was subsequently approved by Mogale City. Thereafter, the plans were drawn up by draughtsman and construction of the pump house commenced, including the mechanical design aspects.

The project included the use of patented technology provided by Dams for Africa, which included a sliding concrete platform door, for complete access control. The sliding door, which is made from 60 MPa concrete, is supported by two wheels at either end that are guided on tracks partially embedded in the concrete. The concrete doors have a three-dimensional aspect to their design, so that they are substantially stable against overturning, due to their significant weight. Concrete is immune to oxy-acetylene attack and is too thick for angle grinders to penetrate; since the door has 5% (vol/vol) steel reinforcing, it is impenetrable to chisel attack.

Challenges

Initially, as a result of the vandalism, the pump station was not in service, and therefore Mogale City required that the new pump

station be commissioned as a matter of urgency. Throughout the construction phase, security on-site was a crucial element. Olivier says that another challenging aspect was the ventilation, as this was a sewage pump station. This was overcome by one hundred 100-mm ventilation holes positioned on the top and bottom of the walls, as these allow for the cooler air to come in from the outside. The air rises as it heats and exits via the top holes.

Multidisciplinary team

Gary Brown, marketing manager at the company, notes that the company has a multidisciplinary team that is well-coordinated. It provided a unique, yet simple concept and solution for this project, which overall represents a quantum leap in pump house design insofar as anti-theft measures are concerned. **35**

ABOVE Site of the newly constructed sewage pump station

BELOW Tecroveer's complete solution

