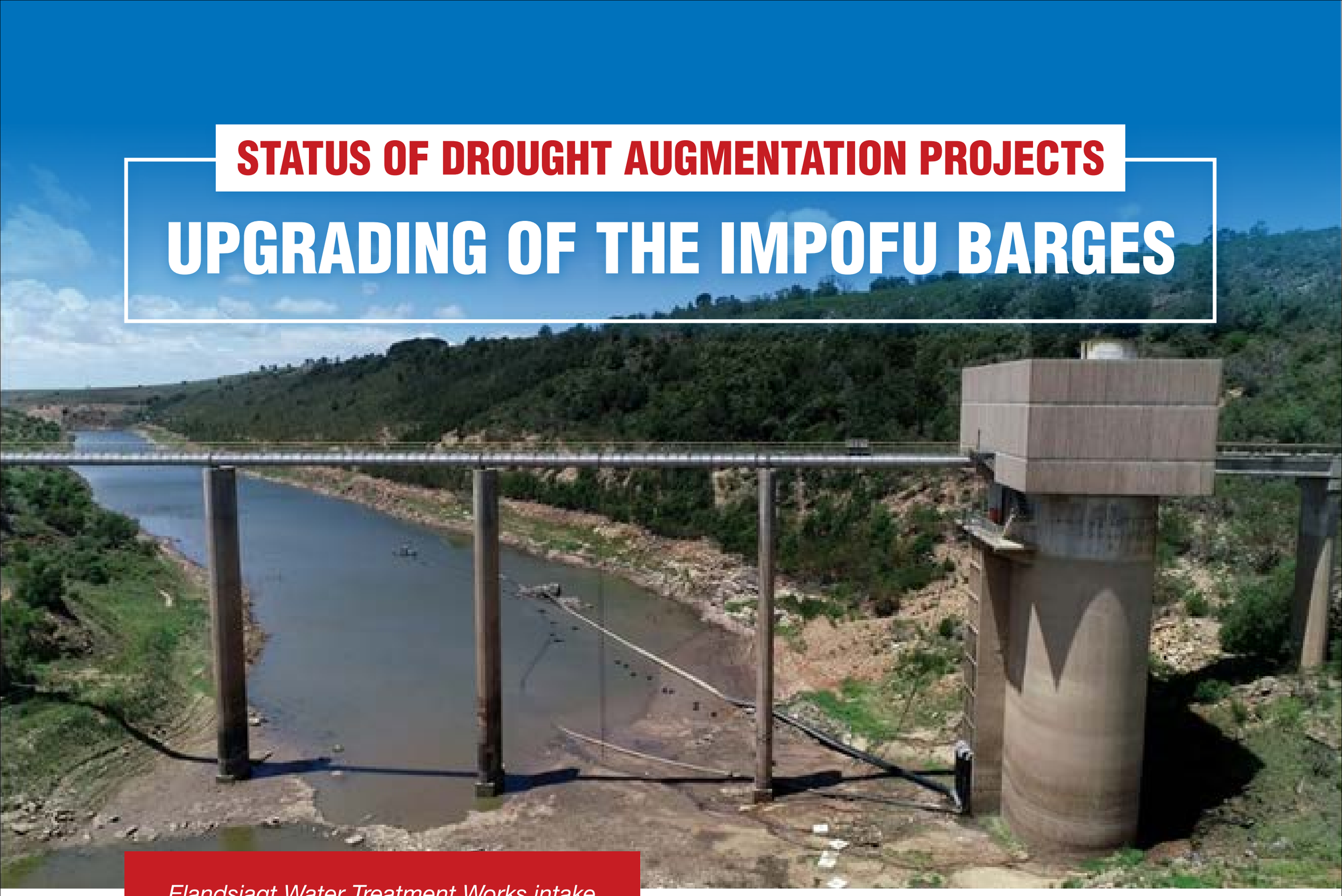
STATUS OF DROUGHT AUGMENTATION PROJECTS

UPGRADING OF THE IMPOFU BARGES



Elandsjagt Water Treatment Works intake tower with existing barge at Impofu Dam.

The Nelson Mandela Bay Municipality (NMBM) commissioned and deployed the first barge in March 2020 to maximise the use of the dead storage and supplied raw water to the Elandsjagt Water Treatment Works.

With the storage within Impofu Dam declining below 7% in January 2023, a 6km long 800mm Ø pipeline has been laid towards the dam wall and a new improved barge constructed.

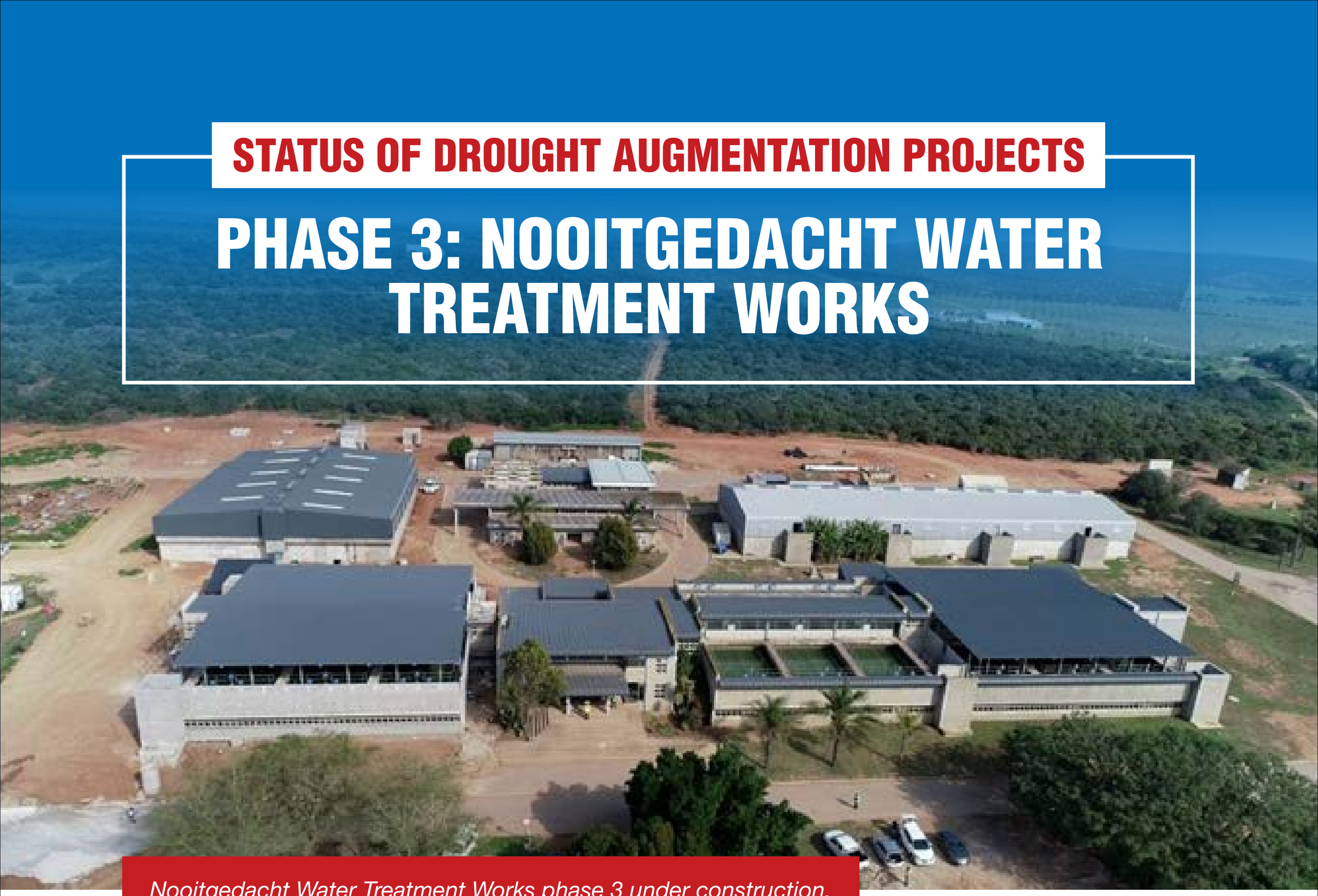
Additional mechanical and electrical rehabilitation work at key water treatment works and pump stations is also being done through this contract.

A contractor has been appointed and construction is underway:

- Contract commenced on 27 June 2022.
- Contract value of R62 535 275.00 (incl. VAT).
- Current programme completion is 82%.
- Estimated completion date is 5 March 2023.

STATUS OF DROUGHT AUGMENTATION PROJECTS

PHASE 3: NOOITGEDACHT WATER TREATMENT WORKS



Nooitgedacht Water Treatment Works phase 3 under construction.

To alleviate the pressure on the local dams, the NMBM are committed to maximising the water supply output of the Nooitgedacht Water Treatment Works.

The project is funded directly by the Department of Water and Sanitation to the Amatola Water board. Once completed, the water treatment works capacity will increase by 70 Mℓ/day and thus the NMBM will be able to supply a total capacity of 210 Mℓ/day from the Gariep Dam.

A contractor has been appointed and construction is underway:

- Contract commenced on 19 May 2017.
- Contract value of R534 076 900.98 (incl. VAT).
- Current programme completion is 99.5%.
- Practically completed on 29 September 2022.
- Completion scheduled for end January 2023.

GRASSRIDGE TEMPORARY WATER TREATMENT WORKS

Process flow of the Grassridge Temporary Water Treatment Works.

In 2018, before the September 2018 rains, the NMBM realised that the Nooitgedacht Phase 3 portion of the works will not be completed in time to assist with the supply of the water demand, and that additional water was drastically required.

To this end, the historic temporary water treatment system at the Grassridge Reservoir was upgraded to make use of modern water treatment technologies. The High-Level Pump station was connected directly to the untreated water from the Orange-Fish River Transfer Scheme and subsequently pumped to the Grassridge Reservoir where the water was treated to produce an additional volume of around 55 Mℓ/day.

A contractor was appointed, and construction has been completed:

- Contract commenced on 22 January 2018.
- Contract value of R31 267 359.22 (incl. VAT).
- Current programme completion is 100%.
- Completion achieved in July 2019.

STATUS OF DROUGHT AUGMENTATION PROJECTS

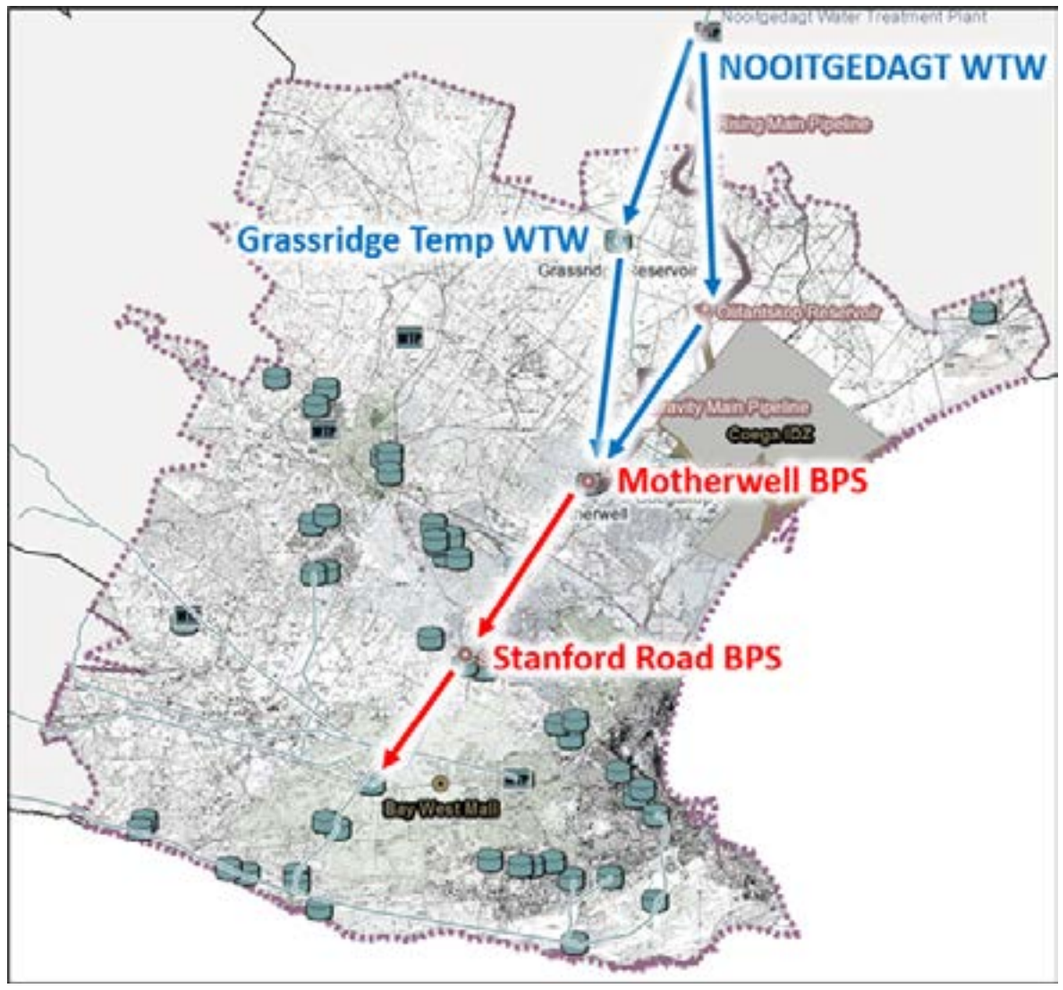
MOTHERWELL AND STANFORD ROAD BOOSTER PUMP STATIONS

The Motherwell and Stanford Road pump stations boost the pressure in the pipeline between the Motherwell and Chelsea Reservoirs to be able to supply the Western areas of Nelson Mandela Bay. These pump stations currently have a transfer capacity of 90 Mℓ/day.

To convey the additional water available from the Nooitgedacht Scheme to the NMB Western supply zones, the Motherwell and Stanford Road pump stations will be upgraded to a transfer capacity of 120 Mℓ/day and 135 Mℓ/day, respectively.

A contractor has been appointed and construction is underway:

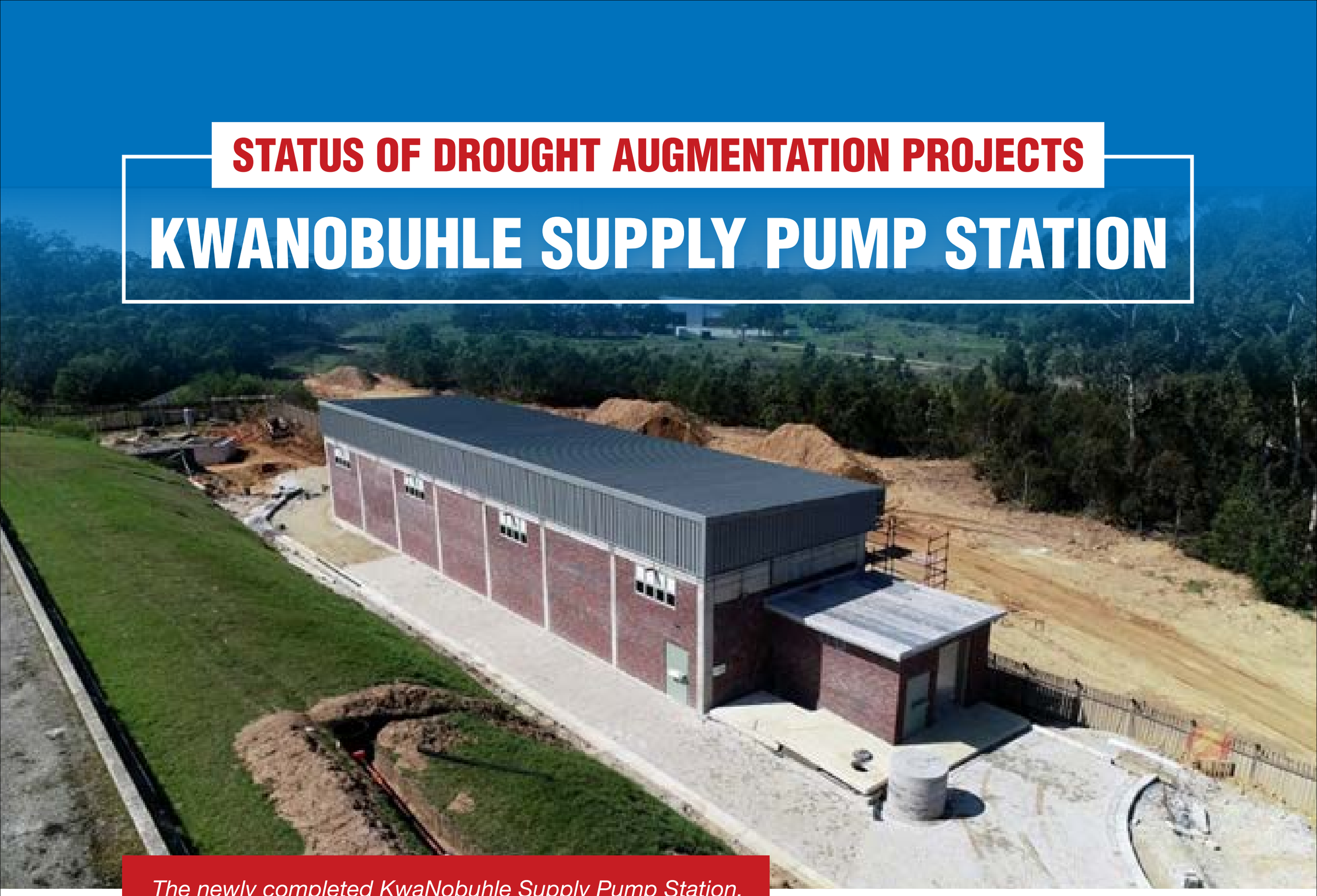
- Contract commenced on 9 June 2022.
- Contract value of R114 528 933.28 (incl. VAT).
- Current programme completion of civil works is 35.5%.
- Completion scheduled for 4 September 2023.



Schematic representation of water flow from the Motherwell and Stanford Road Booster Pump Stations.

STATUS OF DROUGHT AUGMENTATION PROJECTS

KWANOBUHLE SUPPLY PUMP STATION



The newly completed KwaNobuhle Supply Pump Station.

KwaNobuhle currently receives its water from the Loerie Water Treatment Works which is supplied by the Kouga Dam.

It is essential to avail an alternative source of water for this area as the Kouga Dam is severely stressed. In order to convey water from the Nooitgedacht Scheme to KwaNobuhle, the supply pump station located at the Chelsea reservoir needed to be upgraded.

Another benefit of the upgraded pump station is that it will enable the transfer of Nooitgedacht water to the Greenbushes Reservoir and thereafter large portions of Nelson Mandela Bay's Western supply zones through the Churchill Pipelines.

A contractor was appointed, and construction has been completed:

- Contract commenced on 12 July 2021.
- Contract value of R53 808 224.90 (incl. VAT).
- Current programme completion is 100%.
- Completion achieved on 28 November 2022.

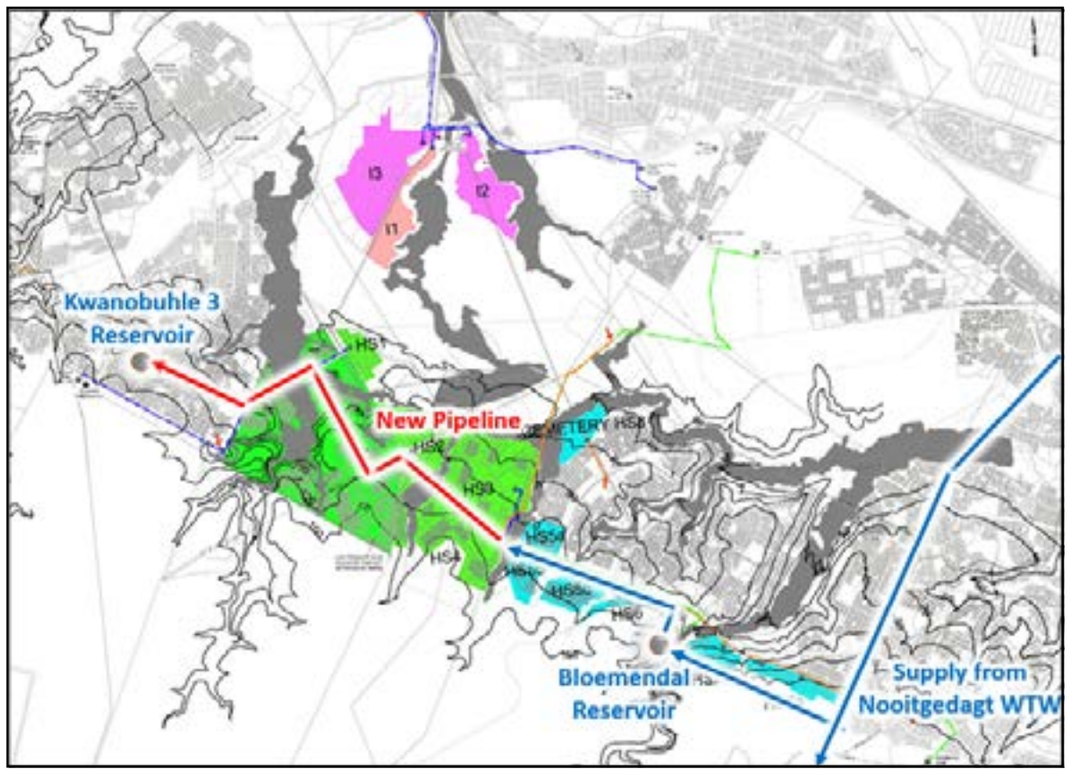
STATUS OF DROUGHT AUGMENTATION PROJECTS

BLOEMENDAL TO KWANOBUHLE PIPELINE

To further convey the available Nooitgedacht water into the Kwanobuhle zone, the construction of a 5500mm x 450mm link pipeline between Bloemendal Reservoir and KwaNobuhle Reservoir 3 along the proposed Stanford Road Extension was required.

Furthermore, the installation of the Bloemendal to KwaNobuhle Pipeline would unlock development within the Jachtvlakte and KwaNobuhle areas.

This link pipeline is designed to convey 8 Mℓ/day to the KwaNobuhle 3 Reservoir, thereby alleviating the strain on the supply of water to the lower areas of KwaNobuhle.



Schematic representation of water flow through the Bloemendal Pipeline

A contractor was appointed and construction has been completed:

- Contract commenced on 2 May 2021.
- Contract value of R24 458 246.85 (incl. VAT).
- Current programme completion is 100%.
- Completion achieved on 26 October 2021.

STATUS OF DROUGHT AUGMENTATION PROJECTS

COEGAKOP WELLFIELD

Coegakop Water Treatment Works under construction.

During the 2009-2012 drought period, various potential groundwater sources were identified, investigated and the results documented. The Groot Winterhoek Aquifer was found to be the most favourable and preparation was made to commence with drilling exploration and probe boreholes in the Coegakop Area.

In February 2014, work commenced for the drilling of thirty-six exploration boreholes in order to site the five production boreholes. These, along with the raw and final water rising mains, were completed in September 2019. Phase 4 of the project included the construction of a water treatment works and the installation of borehole mechanical and electrical equipment. Once completed the Coegakop Water Treatment Works will be the largest Biofiltration Plant in South Africa and will be able to produce up to 20 Mℓ/day of treated potable water to augment the surface water supply sources of the NMBM.

A contractor has been appointed and construction is underway:

- Contract commenced on 20 March 2020.
- Contract value of R299 283 638.76 (incl. VAT).
- Current programme completion is 97%.
- Completion scheduled for end March 2023.

STATUS OF DROUGHT AUGMENTATION PROJECTS

BUSHY PARK WELLFIELD

Bushy Park Wellfield under construction.

This projects scope includes the construction of infrastructure required to abstract, treat, and distribute groundwater into the NMBM bulk water supply system. Ten production boreholes have been identified with combined pumping yields of between 7.0 and 13.3 Mℓ/day.

Water quality testing in terms of SANS:241 indicates that the raw water will need to be disinfected and blended in order to produce potable water. An additional thirteen monitoring boreholes were drilled to better understand and manage the aquifer.

Monitoring of nearby agricultural boreholes will also take place as a means of ensuring minimal impact to this sector.

A contractor has been appointed and construction is underway:

- Contract commenced on 12 July 2021.
- Contract value of R70 017 230.79 (incl. VAT).
- Current programme completion is 97%.
- Completion scheduled for end February 2023.

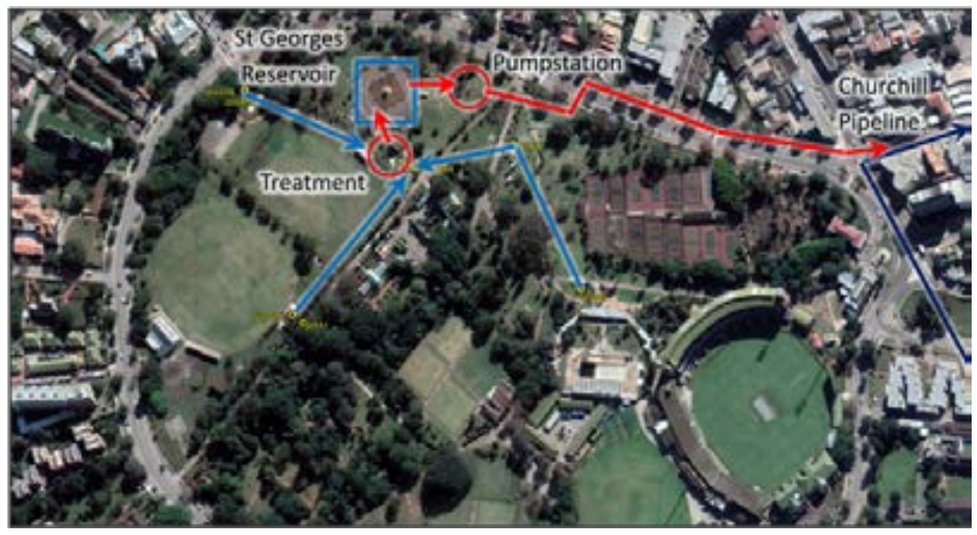
STATUS OF DROUGHT AUGMENTATION PROJECTS

ST GEORGES PARK WELLFIELD

The construction of infrastructure required to abstract, treat, and distribute groundwater into the NMBM bulk water supply system is included within this projects scope. Four production boreholes have been identified and drilled with combined pumping yields of between 1.4 and 3.6 Mℓ/day. Water quality testing in terms of SANS:241 indicates that the raw water is required to be filtered and disinfected in order to produce potable water. An additional five monitoring boreholes were drilled to better understand and manage the aquifer.

The closest practical point for connecting this groundwater scheme into the NMBM's bulk water supply infrastructure is the St Georges Reservoir. The reservoir was constructed in 1907, is supplied with water from the Churchill Pipeline, and has a storage capacity of 8.8Ml. The zone supplied by the St Georges Reservoir includes the suburbs of Central, Humewood, Humerail, South End, and the Harbour.

The groundwater will be treated and discharged into the reservoir. Zone demand calculations indicate that there is a potential surplus of up to 1.0 Mℓ/day from the boreholes after supplying the zone fed from the St Georges Park Reservoir. The excess potable water will thus be pumped by a new pump station directly into the Churchill pipeline nearby in order to supply other reservoirs fed by this bulk pipeline.



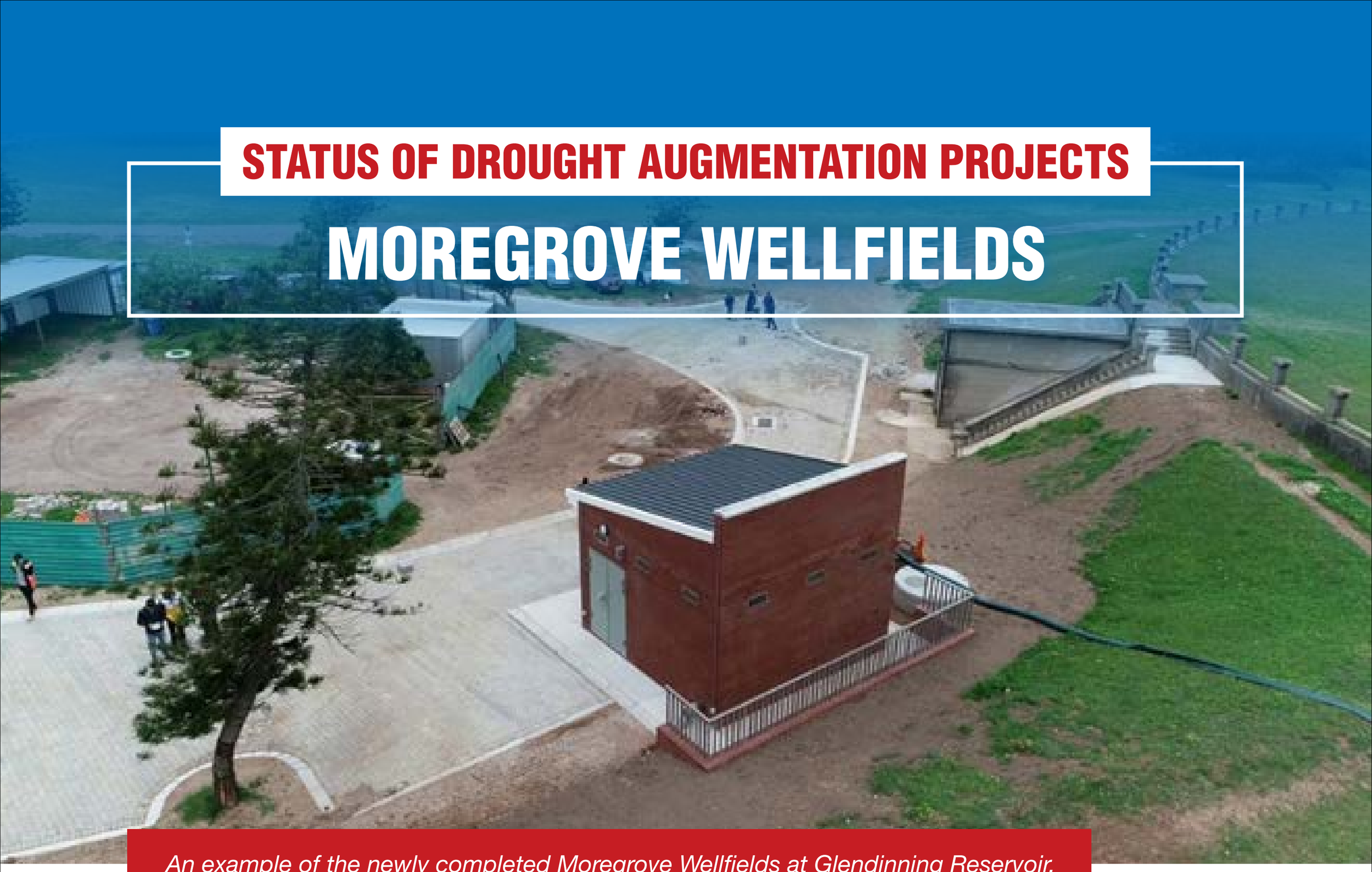
Schematic representation of water flow from the St Georges Park Wellfield.

A contractor has been appointed and construction is underway:

- Contract commenced on 12 July 2021.
- Contract value of R53 833 969.77 (incl. VAT).
- Current programme completion is 98%.
- Completion scheduled for end January 2023.

STATUS OF DROUGHT AUGMENTATION PROJECTS

MOREGROVE WELLFIELDS



An example of the newly completed Moregrove Wellfields at Glendinning Reservoir.

This projects scope includes the construction of infrastructure required to abstract, treat, and distribute the groundwater into the NMBM bulk water supply system. Eleven production boreholes have been identified with a combined sustainable pumping yield of 4.8 Mℓ/day.

Water quality testing in terms of SANS:241 indicates that the raw water will need to be disinfected and blended in order to produce potable water. An additional seven monitoring boreholes were drilled to better understand and manage the aquifer.

Disinfected groundwater will be discharged into the Fort Nottingham, Glendinning and Fairview reservoirs respectively.

The produced volumes will not be enough to meet the full demand from each of these reservoirs and thus the groundwater will be blended with water supplied by the Churchill Pipeline.

A contractor was appointed and construction has been completed:

- Contract commenced on 12 July 2021.
- Contract value of R50 954 611.11 (incl. VAT).
- Current programme completion is 100%.
- Completion achieved on 15 December 2022.