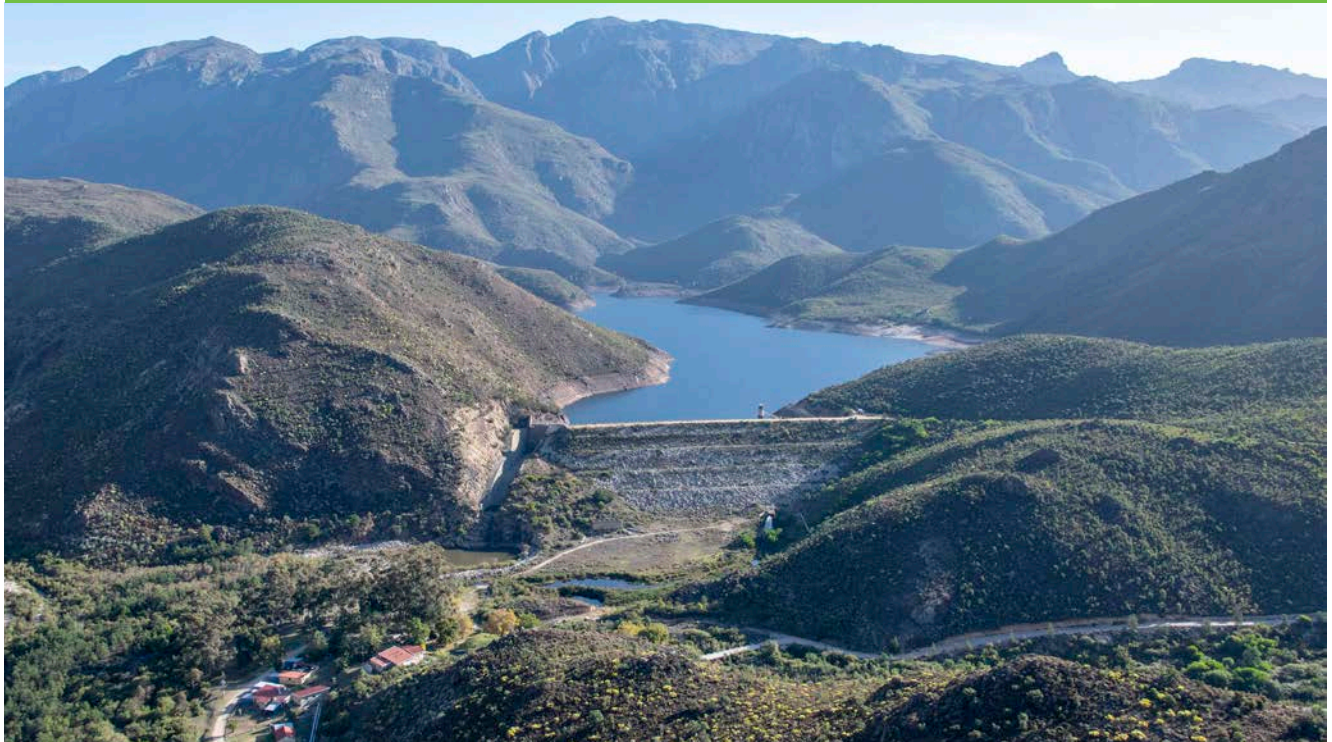


WATER RESOURCE MANAGEMENT

Holsloot River: The hidden waterway behind the Cape's fruit and wine heartland

*The Holsloot River plays a vital role in sustaining farms and towns in the Breede River Valley.
Article by Sue Matthews.*

Jean Treiston



Tucked away in the mountains south-west of Worcester in the Western Cape is a small tributary of the Breede River that punches above its weight as a focus for applied research and infrastructure investment. Over the past decade, the Holsloot River has been the subject of a series of technical studies and government-led interventions to improve water security in the Breede Valley.

The first project to be completed was the Holsloot weir and diversion works, which the provincial government's Minister of Agriculture officially handed over to the Holsloot Water User Association (WUA) in May 2021. Next was the raising of the feeder canal from the Holsloot River to Brandvlei Dam, which was completed in October 2022 and formally launched by national government's Minister of Water and Sanitation in February 2023. More recently, local government in the form of the Breede Valley Municipality commissioned a feasibility study

on increasing water storage in the Stettynskloof Dam, which impounds the river's upper reaches.

The dam is the main water supply for Worcester and Rawsonville, but most people beyond the area have never seen or heard of either it or the river, although both are well-known to flyfishers in the Western Cape. In years past the river was stocked with rainbow and brown trout, which established self-sustaining populations. A 7 km stretch of river immediately below the dam has been divided into six fishing beats controlled by the Cape Piscatorial Society in conjunction with Cape Nature, while access further downstream is arranged through a small resort, the Dwarsberg Trout Hideaway. In mid to late summer, when other rivers are running warm and low, this is considered the river to fish for rainbow trout, because bottom-water releases from the dam for irrigation and environmental flows keep the upper reaches cool and at a more constant level.



Technical studies and infrastructure investments on the Stettynskloof Dam, Holsloot weir and Brandvlei feeder canal (yellow line) have brought the Holsloot River into sharp focus in recent years.

Stettynskloof Dam

Construction of the dam began in 1952, and it was officially opened in 1955. Originally a 30 m-high concrete gravity dam, it was raised in 1981 by adding a 48 m-high clay core earth and rockfill embankment against the downstream wall. The dam takes its name from the Stettyn mountain range along its eastern flank, which bears the distinction of having the highest southern-most peak in Africa – in other words, there is no higher mountain south of Stettyn Peak, at just over 1 820 m. The range, in turn, is named after the farm on the other side of it, which is today a wine estate. In 1714, the Governor of the Dutch East India Company granted the land to two Free Burghers, one of whom was from the eastern European town of Stettin, renamed Szczecin after its transferral from Germany to Poland in 1945.

Raising the dam wall will be a multi-year project with an estimated cost of almost R208 million, but the intention is to start with an interim option that will increase the existing full supply level by 4 m.

The dam, which is owned and operated by the Breede Valley Municipality, has a gross storage capacity of 15 million m³, and a catchment area of 55 km². There is a water treatment works on site with a capacity of 60 Ml/day, and the potable water is then piped to reservoirs at Rawsonville and Worcester, which are approximately 32 km from the dam.

As the population of these towns has grown and water services have been expanded to communities that were previously

without access, water demand has inevitably increased. A few years ago, following an options analysis study, the municipality appointed Ingerop South Africa to investigate the feasibility of increasing the dam's storage by raising the dam wall. In its news bulletin published in the last quarter of 2025, the municipality explained that this initiative could be expected to meet projected domestic and irrigation demand until 2042, while enhancing the region's climate resilience. Like many other parts of the Western Cape, the Breede Valley has experienced below-average rainfall since last winter, and by April 2026 the dam's storage level had dropped below 40%, despite Level 2 water restrictions having been in place since mid-January.

Raising the dam wall will be a multi-year project with an estimated cost of almost R208 million, but the intention is to start with an interim option that will increase the existing full supply level by 4 m. The details have not yet been made public, but according to the SAHRIS heritage case file, the proposals include installing gates on the spillway crest, raising the existing spillway, and constructing a metre-high parapet wall along the dam crest to prevent waves from overtopping the dam during severe storms and floods. It is not clear which of these interventions form part of the interim works and which belong to the broader project, but detailed design and procurement are only scheduled to take place in 2027.

Well-known hydraulic engineer Gerrit Basson, Professor Emeritus in Stellenbosch University's Department of Civil Engineering and Managing Director of ASP Tech, has been involved in the feasibility study, having carried out a 1:40 scale physical model study in the university's Hydraulics Laboratory to evaluate the raising options for the spillway, as well as energy dissipation by its ski-jump and plunge pool.



A 1:40 scale physical model of the Stettynskloof Dam spillway was built at Stellenbosch University's Hydraulics Laboratory to evaluate raising options as well as energy dissipation by its ski-jump and plunge pool.

Holsloot weir

Basson likewise collaborated with Ingerop on the Holsloot weir and diversion works, 11 km downstream of the dam wall. Previously there were three small rockfill weirs spaced along the river to divert water for the Holsloot WUA, but these were frequently damaged during floods, which also eroded banks, clogged abstraction intakes and swept away pumps. The local landowners would typically use earthmoving equipment – the “yellow machines” – to effect repairs, but with the promulgation of the 2010 NEMA EIA Regulations these activities required environmental authorisation unless they were in accordance with a maintenance management plan (MMP) agreed to by the competent authority.

In November 2013, widespread flooding caused by a cut-off low over the Western Cape led to a provincial disaster declaration, triggering the allocation of disaster-relief funding from National Treasury. The Holsloot River had broken its banks during the flood event and caused severe damage, destroying millions of Rands worth of infrastructure and farmland. The provincial environmental and agriculture departments then agreed that a more sustainable solution to the ongoing challenge of flood damage was the replacement of the three weirs with a properly designed and constructed one, using some of the disaster-relief funding. The hydraulic design was carried out by Stellenbosch University, while Ingerop was responsible for the structural and geotechnical design. These aspects are comprehensively detailed in a paper by Vonkeman and co-authors, ‘Design and construction of the Holsloot diversion works on an alluvial foundation’, presented at the 2019 Conference of the South African National Committee on Large Dams (SANCOLD).

In short, a 1:40 scale physical model study conducted at the Stellenbosch University Hydraulics Laboratory together with a geotechnical investigation of the site guided the construction of a 55 m long notch weir, which includes a 10 m low-notch section set 180 mm below the rest of the crest. A concrete roller-bucket with a 4.3 m radius extends along the entire structure to dissipate hydraulic energy, and a riprap zone downstream of it protects the riverbed against erosion and undercutting. The intake for the diversion works is protected from sedimentation by a gravel trap and two sand traps, with the head provided by the low notch helping to flush the traps during small floods so that they are self-scouring. The diverted water is piped to a chamber a little over a kilometre away and then distributed by



The Holsloot weir in July 2021, two months after the handover ceremony. At far right is the pipeline that conveys water from Stettynskloof Dam to Rawsonville and Worcester.

the WUA through existing channels. A pedestrian bridge above the weir allows access to the diversion works from the road to Stettynskloof Dam.

The bridge was one of the factors that later caused contention, because it had not been considered in the Basic Assessment Report (BAR), which was submitted to the provincial environmental authority in February 2017. It was added to the design after environmental authorisation was granted in May 2017, approving Site C for the weir – the furthest downstream of three alternatives and not the best site proposed during the feasibility study from a hydraulic perspective – and with the diversion works on the left bank to minimise disturbance to both traffic and fynbos. The bridge design, which includes two supporting pillars in the river channel, was incorporated into the 1:40 scale physical model and tests were done to ensure accumulated debris would not affect the weir's stability during floods.

A more significant point of contention arose from the scale of construction activities upstream of the weir. Authorisation had been granted for a small footprint covering only the size of the weir, diversion works and riprap zone downstream, while the Construction Environmental Management Programme (EMPr) stipulated that access to the river and its floodplain by workers and machinery should be limited to an area extending 10 m upstream and not more than 70 m downstream. No construction camps or stockpiles of material were to be allowed below the 1:100-year floodplain or closer than 30 m from the flood channel. The EMPr included a section on flow diversion and dewatering of the construction area, but what was done by the contractor – explained and illustrated in the Vonkeman et al. paper – resulted in extensive vegetation clearance, earthmoving, infilling and excavation over an area 20 times larger than anticipated, with construction camps and stockpiles clearly located within the floodplain.

Work had begun in early April 2019, and an environmental control officer (ECO) had been appointed to oversee the project and ensure compliance with the BAR, EMPr and other environmental legislation. After becoming aware of the unauthorised activities and non-compliance with the environmental authorisation's conditions, the environmental assessment practitioner and freshwater consultant who had prepared the BAR and EMPr submitted a formal complaint to the



Casidra

By January 2026, indigenous vegetation above and below the weir site was becoming well established after intensive rehabilitation work.

provincial environmental authority in February 2021.

A Compliance Notice to rehabilitate the site was only issued to Casidra, the provincial SOC that had implemented the project on behalf of the Department of Agriculture, in September 2022 – well over a year after the construction had been completed. Casidra appointed an alien-clearing contractor, a freshwater ecologist and a botanist to carry out the rehabilitation work, as well as an independent ECO to monitor progress in line with an approved rehabilitation plan, a botanical assessment and the Compliance Notice requirements. Over the following three years, alien invasive vegetation was removed, areas prone to erosion were stabilised, and disturbed areas were revegetated, using a combination of seeds and cuttings collected from adjacent plant communities and more than 1 200 nursery-grown reeds, bulrushes, shrubs and groundcovers. Compacted soils at the river edge were contoured to create shallow depressions and flow paths before being planted with wetland species such as palmiet, and natural recolonisation by sedges and grasses has since occurred. The ECO's post-rehabilitation audit report indicates that by February 2026 the rehabilitation of approximately 4 ha of disturbed riverine habitat had been completed, with partial restoration of the wetland's ecological function.

The site has now been handed back to the WUA, which agreed to maintain alien-clearing upstream of the weir for 7 km of river corridor covering just under 200 ha, in terms of an MMP approved by the environmental authority in 2017. The initial clearing was conducted by the Department of Agriculture during 2019–2020, after which the WUA took responsibility for follow-up clearing, funded through a levy on WUA members' water use. Downstream of the weir, landowners who draw water directly from the river pay for alien-clearing along a 13.7 km stretch to the confluence with the Breede River, also agreed as part of the MMP.

This commitment to alien-clearing – and the strengthened environmental stewardship it represents – is viewed as one

of the most positive outcomes of the weir's authorisation and construction. Another is the prevention of erosion downstream and the reduced need for earthmoving with the "yellow machines", although maintenance activities are permitted under both the MMP and a General Authorisation (G. 49833; GoN 4167) gazetted in December 2023. As of March 2026, two major flood events have occurred since the completion of the weir, with no significant damage to riverbanks or infrastructure reported, which has been attributed to the weir's ability to attenuate flows.

The weir also enables accurate monitoring of water abstraction by the WUA, ensuring it is compliant with the water use licence. The WUA abstracts its allocation over 180 days, and not all of this water emanates from Stettynskloof Dam. There is an agreement that all inflows to the dam between 16 November and 15 March are allocated to the WUA, which may release water as needed, but there are several streams discharging into the Holsloot River downstream of the dam wall – in fact, the catchment of the weir is 129 km² compared to the dam's 55 km². Most of the streams dry up in late summer, but they gush during winter and after storms, contributing a large volume of flow.



Google Earth

Surplus winter flows are diverted from the Smallblaar River into the Holsloot River, and then into the Brandvlei feeder canal.

Google Earth



The Holsloot weir site in August 2018 (left), before construction began and with the site infested with alien plants; October 2019 (middle), six months after construction began; and December 2025 (right), after the rehabilitation work had been completed.

Brandvlei Feeder Canal

Some 11 km downstream of the weir, surplus winter flows in the Holsloot River – together with those from the Smallblaar River – are diverted into the feeder canal to the Brandvlei Dam. The original dam was completed on the farm Brandvlei in 1922, and named Lake Marais after JP (Kowie) Marais, a Robertson farmer who was instrumental in lobbying for its construction and establishing the Breede River Conservation Board in 1913. It was raised in 1950 and then again when it was merged with the adjacent Kwaggaskloof Dam, completed in 1972, to create the Greater Brandvlei Dam. The then Department of Water Affairs took ownership of the dams in 1973 for this work as part of the development of the Greater Brandvlei Government Water Scheme, which included upgrading the canals and constructing the Papekuils Pump Station to pump water from the Breede River into the dam. The scheme was completed in the early 1980s, but the dam's current storage of approximately 450 million m³ was limited to about 72% of total capacity by the feeder canal. This was because water backed up in the canal when the dam reached a certain level, necessitating the closure of gates at the canal's entrance on the Holsloot River to avoid flooding surrounding farmland.

The main purpose of the Greater Brandvlei Scheme is to support agricultural irrigation.

The raising of the canal's walls by 30 cm over its entire length of 4 km – completed in October 2022 at a cost of R20 million – reduces this problem and allows an additional 33 million m³ to be stored in the dam. Vonkeman and Basson conducted the hydraulic investigation for this work too, as detailed in their paper 'Hydraulic design aspects of the proposed Holsloot-

Brandvlei Dam diversion upgrade in the Western Cape', presented at the 2018 SANCOLD Conference.

The additional water storage allowed the Breede-Olifants Catchment Management Agency (BOCMA) to consider applications for water use licences for the use of this water, with the first phase focusing on 100% B-BBEE applications and the second considering partnerships of 30–50% B-BBEE. A number of licences have been issued, unlocking further economic development in the area.

While the main purpose of the Greater Brandvlei Scheme is to support agricultural irrigation, with stored water released during summer both directly into canals and into the Breede River for abstraction downstream, it also supplies domestic water for the towns of Robertson, Ashton, Montagu and Bonnievale in the Langeberg Municipality. An additional allocation of 10 million m³ of water per year is reserved for "freshening releases" to dilute the Breede River's high salinity in summer, caused by the underlying geology and irrigation return flows.

All of this means that the little Holsloot River exerts an influence far beyond its secluded upper reaches. It acts as a linchpin for the Breede River valley, sustaining farmlands, communities and ecosystems that depend on its freshwater flows. And given that this is South Africa's largest fruit and wine-producing region, the Holsloot's contribution helps ensure the valley's abundance reaches households across the country and beyond – proof that even small tributaries can shape the prosperity of an entire landscape.