



Ref No: 20170509 – Y

16 January 2018

Francois Vanloon

AECOM Engineers

Email: francois.vanloon@aecom.com

COMMENT ON WATER AND SANITATION CAPACITY FOR PROPOSED FOUR SITES OF BRACKENGATE, RIVERGATE AND FILM STUDIO

Background

AECOM consulting engineers seek confirmation of the available capacity within the existing network surrounding the proposed four sites in Brackengate, Rivergate 1&2, Film Studios. The proposed development entails to build three large data centres in the Cape Metro area.

The proposed sites are planned for Industrial development and is reflected in the Master Plan as such.

This letter provides an analysis of the water and sewer infrastructure near the development.

Table 1.1: Water demands and sewer flows as supplied by AECOM Consulting Engineers

Description	Potable Water Demand				Sewer Flow*	
	Land Use	Total AADD (kl/d)	Peak Flow (l/s)	Fire Flow (l/s)	Total ADWF (kl/d)	Peak Flow (Dry weather) (l/s)
Brackengate Rivergate 1&2 Film Studios	Industrial	2	2	20l/s	1.9	1.9

Water Reticulation

Brackengate

The proposed development is situated within the Protea Valley distribution zone.

North of the site is a 200mm main with a peak head of 90m. The water network has sufficient capacity to supply Brackengate development with 2 l/s as well as the full development.

There appears to be no negative impact from the development application on the water network.

See figure 1 for existing water network layouts.

Rivergate 1&2

The proposed development falls within the Melkbos water distribution zone.

The expected peak pressure is 90 m. It appears that the water reticulation system has sufficient capacity to supply the proposed development.

See figure 2 for existing water network layouts.

Film Studio

This development falls within the CCT 110 water distribution zone. The City's water network model shows the following:

North of the development there is a 2400 mm Ø bulk water main pipe with peak pressure of 97.9 m. This is a bulk main but no new additional connections will be allowed. Additional connection to the bulk system will not be allowed so existing uses will have to be consulted when proposing a connection for the development.

A 380 mm supply connection provides water to the studio and has a static pressure of 97m. This system has sufficient capacity to supply the additional peak of 2 l/s and is also able to accommodate the full development.

It should be noted that the full draw off on a 110 mm will result in high pipe velocities and unnecessary losses.

The water network has sufficient capacity to supply the development. It should be however noted that under drought conditions significant drops in pressure can be expected, when designing the services this possibility needs to be taken into account.

See figure 3 for existing water network layouts.

Bulk Water

No detailed input per site has been received from bulk water, upon received additional comment report will be revised.

However, there is expectation that the bulk water supply infrastructure has sufficient capacity to accommodate the 3 developments.

Sewer Reticulation

Brackengate

The City's sewer network indicates a 200mmØ network to the west of the development which has an unallocated capacity of 90%, and is therefore able to accommodate a peak flow of 1.9 l/s. There are however constraints in the downstream bulk sewer system up to and including the Rietvlei pumpstation.

The Rietvlei pumpstation as well as the bulk sewer upstream of the pumpstation (Forel Street to Annandale Rd) has been identified as Master Plan items and require upgrading. The gravity network just upstream of the pumpstation

The Rietvlei pumpstation is on the 3-year budget and is to be upgraded.

See Figure 6 existing sewer network layouts.

See Figure 13 for sewer constraint

The timing and budgeting for the upgrades can be confirmed with the Reticulation District Head, Charl Moller (021 850 4318) Charl.Moller@capetown.gov.za.

Rivergate 1&2

The City's sewer network indicates a 160mmØ network to the east of the development which has an unallocated capacity of 90%, and is therefore able to accommodate a peak flow of 1.9 l/d.

See figure 8 existing sewer network layouts.

The proposed development drains to Potsdam-Railway Pump Station. Constraints exist downstream at the pump station and as result master plan projects are required to upgrade these constraints. These constraints are a long way downstream and the small additional flows is not expected arrive at the peak flow period. The sewer network is therefore able to accommodate the development.

The timing and budgeting for the upgrades will have to be confirmed with the Reticulation District Head Ed Albertyn (021 980 6198) Eduaan.Albertyn@capetown.gov.za

Film Studio

The City's sewer network indicates a 160mmØ and 200mmØ network at the development, which has an unallocated capacity and is therefore able to accommodate a peak flow of 1.9 l/s.

See figure 10 existing sewer network layouts.

Wastewater

Wastewater of the 3 respective sites drains to the following Wastewater Treatment Works (WWTW), shown in Table 1

Table 1 WWTW and the available capacity.

Development Sites	WWTW (Wastewater treatment works)	Available Capacity
Brackengate	Bellville WWTW	Sufficient Capacity
Rivergate	Potsdam WWTW	Sufficient Capacity
Film Studio	Zandvliet WWTW	Sufficient Capacity

Although the Potsdam WWTW is being upgraded, sufficient capacity exists to accommodate 1.9 kl/d

Although the Zandvliet WWTW is being upgraded, sufficient capacity exists to accommodate 1.9 kl/d

Treated Effluent

The treated effluent networks are not in close proximity to the three proposed sites. In future these sites could potentially be accommodated with treated effluent when the treated effluent infrastructure is expanded. Treated effluent would be a more economical option than potable water for cooling purposes provided it can be used for the cooling system or may require additional treatment before use.

Conclusion

There appears to be sufficient capacity in the water infrastructure for the 3 sites.

The downstream sewer reticulation infrastructure at Brackengate and Rivergate has constraints. The sewer system downstream Rivergate will be able to accommodate the small flow but surcharging can be expected.

The Film Studio and Rivergate sites flow to Zandvliet and Potsdam WWTW respectively. Both these Wastewater Treatment Works are being upgraded but will be able to accommodate 1.9 kl/d prior to its completion

The reticulation upgrades required on the above sites will require direct engagement with the District Heads to confirm timing and budget.

Timing of future expansion of treated effluent network can be confirmed with the operational head of treated effluent at Water Demand Management.

Conditions

The development of the various sites is subject to the following conditions:

1. Development Contributions are payable as per the DC policy, to be quantified by the Reticulation District Heads.
2. All water and sanitation bulk and link services to be in place prior to occupation of any of the proposed sites.

3. The development of the Brackengate site requires the upgrading of the bulk sewer upstream of Rietvlei pumpstation, the pump station and rising main.

Additional Technical Requirements

4. The water and sewer capacities that may be allocated according to this document shall not be reserved if not taken up before the lesser of 5 years or the approved development period.
5. Water and Sanitation municipal service plans to be designed according to Departmental Service Standards and be approved prior to construction.
6. The owner is responsible for application for the new water metered connection at the standard tariff to the Reticulation District Head. If an existing water meter is not accessible, this will include for the repositioning of the meter.
7. As built drawings of installed water and sewer services to be submitted to the City before transfer of erven will be allowed.
8. All services must be inspected and approved on completion, at which time a completion certificate will be issued, before transfer of erven will be allowed.

General/ Disclaimer

Information provided is based on best available data.

The flows and pressures provided in this comment are theoretical and not measured.

All levels and dimensions provided must be checked on site.

Yours Faithfully

2018/01/17

X 

Signed by: Shamile Manie

On behalf of

Peter Flower

DIRECTOR: WATER & SANITATION DEPARTMENT
