Annexure 10

City of Cape Town's assessment of the Water and Sanitation Infrastructure Capacity and Development Conditions dated 09 July 2025

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Attention: Carshif Talip (Pr Eng)
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WATER AND SANITATION INFRASTRUCTURE CAPACITY AND DEVELOPMENT CONDITIONS FOR THE PROPOSED CAPE WINELANDS AIRPORT DEVELOPMENT

Background

Zutari Consulting Engineers has been appointed determine civil engineering services requirements and to apply for the necessary capacities for the proposed Cape Winelands Airport development on portion 10 of Paarl Farm 724, Farm 724-RE, portion 23 of Farm 724, portion 7 of Farm 942, Farm 474-RE, portion 3 of Farm 474 and portion 4 of Farm 474, Fisantekraal.

The proposed development for the Cape Winelands Airport proposes a combination of office, retail, aircraft hangers of varying sizes, parking spaces, heliports, commercial buildings, hotels, a terminal building and administrative buildings with a total estimated building area of 350 000 m^2.

This letter provides an overview of the existing water and sewer infrastructure near the development, the capacity of both complete systems to service it as well as associated conditions that would apply. The information provided is based on City of Cape Town master plan model as well as comments from relevant branches of the department.

Table 1: Estimated water demand and sewer flow anticipated for the proposed development

Description	Potable Water Demand[1]				Sewer Flow[2]	
Cape Winelands Airport	**Quantity (Units/Area/ No. people)**	**Total AADD (kℓ/d)**	**Peak Flow (ℓ/s) (PF = 1.0)**	**Fire Flow (ℓ/s)**	**Total ADWF (kℓ/d)**	**Peak Flow (Dry weather) (ℓ/s) (PF = 2.0)**
Business/Commercial	84 708 m²	551.0	6.4	50.0	440.8	10.2
Yard Connection	92 493 connections	12.0	0.14		9.6	0.22
Warehousing	66 227 m²	199.0	2.3		159.2	3.7
Hotel	9 443 m²	85.0	1.0		68.0	1.6
Park - Grounds Only	n/a (area in ha)	276.0	3.2		0.0	0.0
Industrial	7 210 m²	29.0	0.34		23.2	0.5
Garage and Filling Station	1 361 m²	10.0	0.12		8.0	0.2
Terminal Building	88 557 passengers	390.0	4.5		312.0	7.2
Total	**350 000 m²**	**1552.0 kℓ/d**	**18.0 ℓ/s**	**50.0 ℓ/s**	**1020.8 kℓ/d**	**23.6 ℓ/s**

Notes:

[1] Based on the water demand per landuse as indicated in the engineering services report

[2] Based on 80 - 90 % of water demand that goes to sewer as per calculation provided

Water Reticulation

Distribution zone

The development site falls within the Spes Bona Reservoir water distribution zone. Based on the latest GIS and hydraulic model information, there are no existing municipal potable pipelines in close proximity to the site.

Present situation

The Cape Winelands Airport (CWA) development is currently not serviced by a municipal water connection; instead, the existing buildings on site are serviced through boreholes. The nearest accessible existing municipal water main is a 450 mmØ main along Lichtenburg Road as shown in figure 1 attached. Under current operating conditions, this main has a peak flow and velocity of 78.1 ℓ/s at 0.65 m/s respectively. The average peak and static pressure in this main is 110 m and 122 m respectively.

Based on the results of a modelling exercise completed to determine if connection to the 450 mmØ water main was able to supply the proposed development whilst taking into consideration the existing area demand growth and other major developments which has already been approved. The results concluded that at best the 450 mmØ main only had the capacity to supply approximately **5.63 ℓ/s** without compromising existing developments.

The proposed development is projected to require a total Average Annual Daily Demand (AADD) of 1 552 kℓ/d. This demand is composed of both potable and non-potable water uses. Domestic water use alone accounts for approximately 1 299 kℓ/d. A significant portion of the total demand, approximatley 691 kℓ/d, is allocated to non-potable uses. These include irrigation (253 kℓ/d), outdoor use (151 kℓ/d), and toilet flushing (287 kℓ/d). All non-potable water requirements are expected to be met through Treated Sewage Effluent (TSE) supplied by an on-site Wastewater Treatment Plant (WWTP), which supports the development's sustainability goals by reducing reliance on potable water sources.

The remaining **861 kℓ/d** is designated for potable use. This includes indoor use, which constitutes 25% of the **total indoor demand (287.25 kℓ/d)**, and is also partially supplied by TSE. The balance of the potable water requirement is sourced from two primary supplies: **399.0 kℓ/d from the City of Cape Town** (CoCT) and **462.0 kℓ/d from an on-site borehole**.

Table 2: Water Demand Summary Table

Category	Volume (kℓ/d)	Source
Average Annual Daily Demand (AADD)	1552.0	-
Domestic Use	1299.0	-
Non-Potable Use	691.0	On-site WWTP (TSE)
- Irrigation	253.0	On-site WWTP (TSE)
- Outdoor Use	151.0	On-site WWTP (TSE)
- Toilet Flushing	287.0	On-site WWTP (TSE)
Potable Use	861.0	CoCT and Borehole
- Indoor Use (25% of 1,149)	287.25	On-site WWTP (TSE)
- City of Cape Town (CoCT)	399.0	City of Cape Town
- Borehole	462.0	Borehole

Based on the detailed breakdown of water demand and the identified sources of supply, it is evident that there is sufficient infrastructure capacity to support the proposed development. The integration of treated sewage effluent (TSE) from the on-site wastewater treatment plant for all non-potable uses significantly reduces the burden on potable water resources. Furthermore, the combined potable supply from the City of Cape Town and the on-site borehole adequately meets the projected daily demand.

Refer to figure 1 attached for existing water network overview.

Bulk Water

No infrastructure under the control of the City of Cape Town's Bulk Water Branch exists in the immediate vicinity of the proposed development shown in the application.

The City of Cape Town's bulk supply system has sufficient water resource, treatment, bulk storage and conveyance capacity to supply the estimated average daily demand of **399.0 kℓ/day** respectively of the proposed development.

The connection will have to be connected to a nearby reticulation network.

The are no Bulk Water ground water schemes located in the vicinity of the development. The applicant is therefore required to obtain the necessary authorisations to abstract groundwater from the National Department of Water and Sanitation (DWS).

Sewer Reticulation

Drainage area

The proposed development at present does not fall within an existing catchment area, but any new sanitation infrastructure that is installed will drain to the Fisantekraal Wastewater Treatment Works (WwTW).

Present situation

The proposed development is located on the urban edge, where municipal sewer infrastructure is currently limited. The nearest existing services are situated in Fisantekraal. To ensure adequate wastewater management, the development will implement a dual approach: the construction of a pump station and associated rising main to convey sewage directly to the Fisantekraal Wastewater Treatment Works (WWTW), as well as the installation of an on-site wastewater treatment package plant.

Both proposed options are considered feasible since Fisantekraal WwTW has sufficient capacity to treat the proposed effluent produced from the development. Further coordination with the City's Water and Sanitation Department, particularly the Water Pollution Control unit, will be required to register the package plant and confirm discharge protocols.

Refer to figure 2 attached for existing sewer network overview.

Water Pollution Control

Should the applicant discharge to the Fisantekraal WWTW the following will be applicable:
Any company producing industrial effluent (laundry, restaurant; butcher etc.) should comply with the Wastewater and industrial effluent bylaw (2014) and the Bylaw relating to Storm water management: Companies should pay special attention to the following points with regards to the Wastewater Bylaw:

- They will need to apply for an Industrial Effluent Permit
- They need to have a sampling chamber where the final industrial effluent can be sampled before it mixes with domestic waste
- Industrial Effluent needs to pass through a suitable treatment facility before it is allowed to be discharged to the sewer
- No cross connections between storm water and wastewater

Should the development discharge industrial effluent into the sewer system our Water Pollution Control unit will have to be contacted in this regard. The development falls under the Oostenberg Region. The contact person for this is Thembakazi Gobodo. She may be reached via email address: Thembakazi.gobodo@capetown.gov.za and telephone number 021 400 3320.

Wastewater Treatment

The anticipated wastewater flow from this proposed development has been calculated to be **1020.8 kℓ/d**.

This proposed development is situated within the catchment of the Fisantekraal Wastewater Treatment Works (WwTW). This treatment works has sufficient unallocated capacity to accommodate additional influent. Given the magnitude of the proposed development, a phasing plan with associated sewer flows and anticipated first flush dates are to be provided to the Wastewater Branch - Sven.Sotemann@capetown.gov.za.

Approval for the package plant and the required process that needs to be followed can be discussed with Caashief Adams (Caashief.Adams@capetown.gov.za) – Head: Water Demand Regulation.

Conclusion

Based on the comprehensive assessment of existing infrastructure, projected demands, and proposed supply strategies, the Cape Winelands Airport development is considered feasible from a water and sanitation perspective. The total projected water demand of 1 552 kℓ/day will be met through a combination of potable and non-potable sources, including treated sewage effluent (TSE) from an on-site wastewater treatment plant, municipal supply from the City of Cape Town, and groundwater abstraction via boreholes. The use of TSE for all non-potable applications significantly reduces reliance on municipal potable water, enhancing sustainability.

On the sanitation side, the development will implement both a pump station and rising main to convey sewage to the Fisantekraal Wastewater Treatment Works (WwTW), as well as an on-site wastewater treatment package plant. This dual approach ensures operational flexibility and compliance with municipal standards. Subject to adherence to the outlined technical conditions and regulatory approvals, the existing and planned infrastructure is sufficient to support the proposed development.

Conditions

The Water and Sanitation Department supports the proposed application subject to the following conditions:

1. The developer/owner at his cost provides all internal services and link services required for the extension of the proposed development.
2. Detailed Civil Engineering services plans be submitted to the Department of Water & Sanitation for approval, showing how the new proposed development will be serviced with new water and sewer connections.

3. Before commencement of construction, all way leave applications should be in place and approved.
4. All new service connections to be constructed and inspected by Council, on completion, a certificate of completion to be issued by the Consulting Engineer, before section 137 for transfer will be approved.
5. The developer be responsible for the payment of the development contributions for bulk civil engineering services, if any, as determined annually by Council and contained in the attached signed Acknowledgement of Debt.
6. All internal services are private and will not be taken over by The City of Cape Town.
7. A civils layout must be submitted to Tiaan.Wright@capetown.gov.za for approval. The design is to be completed and signed off by a registered civil engineer.

Additional Technical Requirements

1. The water and sewer capacities allocated according to this document shall not be reserved if not taken up before the lesser of 5 years or the approved development period.
2. Water and Sanitation municipal service designs to be designed according to Departmental Service Standards and be approved prior to construction. These standards can be obtained on the City of Cape Town Website.
3. The applicant must advise this Directorate when all conditions have been complied with, in order to have the work inspected.

General/ Disclaimer

Information provided is based on best available data. The infrastructure as-built information referred to and used in the analysis is based on the GIS asset records, while modelled pressures, flows, velocities, capacities and volumes are based on hydraulic models of the current land use and demands. Where appropriate, future land use and demands are considered. The flows and pressures provided are theoretical and not measured. All levels provided to be verified on site.

Yours faithfully

Digitally signed by McKaylin Adonis
Date: 2025.07.10 11:15:21 +02'00'

On behalf of
Zolile Basholo
DIRECTOR: TECHNICAL SERVICES, WATER & SANITATION DIRECTORATE