Appendix E16: Confirmation of Services

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15 September 2021

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COMMENT ON WATER AND SANITATION CAPACITY: ATLANTIS PV PROJECT ON THE PORTION OF ERF 2756-RE; WESFLEUR, ATLANTIS.

The City of Cape Town intends to develop, own and operate a 10 MW ground-mounted photovoltaic (PV) system on a portion of Erf 2756-RE in Wesfleur, Atlantis Western Cape (refer to Annexure A – Locality Plan). This solar PV facility will have a range of associated infrastructure, including an on-site substation.

This memorandum provides an overview of the existing water and sewer infrastructure near the proposed development sites, including the foreseeable impact on the infrastructure caused by the proposed development. Furthermore, this memorandum includes the associated conditions and technical requirements applicable to the proposed development.

Table 1 and Table 2 show the estimated water and sewer demand flows for the proposed development site based on the information provided by the applicant and Redbook 2019 (Section J for water supply and Section K for Sanitation). Table 1 is for the construction phase; Table 2 is for the operation phase. See the notes below the tables for estimated fire flow and assumptions made.

Table 1: Estimated Water and Sewer Demands Flow for the Construction phase

SITE INFORMATION			WATER				SEWER	
Land Use	Quantity	Units	Rate (kL/unit/day)	AADD (kL/day)	Peak Flow* (l/s)	Fire Flow (l/s)	ADF (kL/Day)	Peak Flow* (l/s)
Flats	183	workers	0.02	3.55	0.14	50	2.84	0.08
Total				**3.55**	**0.14**	**50**	**2.84**	**0.08**

Notes:

- *Based on the potable water demand of 106.5 kL/month for construction phase (provided by the applicant)*
- *Sewer to AADD ratio of 0.8 (Redbook 2019, Table J.2, Table K.4)*
- ** Water peak factor (PF) = 3.3 and the Sewer PF = 2.5 (Redbook 2019, Table J.9 and Table K.8)*
- *Fire flow = 50 L/s; Moderate risk 1 : Industrial (Redbook 2019, Table J.17)*

Table 2: Estimated Water and Sewer Demands Flow for the operation phase

SITE INFORMATION			WATER				SEWER	
Land Use	Quantity	Units	Rate (kL/unit/day)	AADD (kL/day)	Peak Flow* (l/s)	Fire Flow (l/s)	ADF (kL/Day)	Peak Flow* (l/s)
Flats	16	workers	0.09	1.50	0.06	50	1.20	0.03
	-	Solar panels	-	4.11	0.16		3.29	0.10
Total				**5.61**	**0.22**	**50**	**4.49**	**0.13**

Notes:

- *Based on the potable water demand of 45 kL/month for operation phase (provided by the applicant)*
- *Based on the 1.5 ML/year acceptable allowance for washing of the PV panels (provided by the applicant)*
- *Sewer to AADD ratio of 0.8 (Redbook 2019, Table J.2, Table K.4)*
- ** Water peak factor (PF) = 3.3 and the Sewer PF = 2.5 (Redbook 2019, Table J.9 and Table K.8)*
- *Fire flow = 50 L/s; Moderate risk 1 : Industrial (Redbook 2019, Table J.17)*

WATER RETICULATION

The proposed development falls within the Dustemburg PRV zone within the Blaauwberg Network, supplied by external bulk water mains Voelvlei water treatment plant (WTP) and or reservoirs.

The City's water reticulation model indicates a 255 mm Ø water pipe along the northern border of the proposed site, extending from Bon Aventura Avenue and abutting both the lower western and southern boundaries of Erf 2739-RE until the Charel Uys Drive. This pipeline feeds off a 300 mm Ø distribution bulk main (DBM) from the Atlantis Middle PRV, with a feeding node at the corner of Charel Uys Drive and Reygersdal Avenue. The Charel Uys Drive BDM appears to be the main supply for the Atlantis Middle PRV Management Zone. Therefore, the Dustemburg PRV is a slave to Atlantis Middle PRV Zone (Master).

Table 2 shows the flow properties of the 225 mm Ø water main in northern Boundary, the 225 Ø water main extension near Charel Uys Drive, and the 300 Ø water DBM at the corner of Charel Uys Drive and Reygersdal Avenue.

Table 2: Existing water mains near proposed development

WATER MAINS SERVICING THE PROPOSED CONSOLIDATED SITE						
Pipes/ Street	Location from Erf	Ø (mm)	Flow (l/s)	Velocity (m/s)	Pressure (m)	
					Peak	Static
Bon Ventura Ave.	*Northward*	225	14.59	0.37	33.56	57.42
Abutting Erf 2739-RE	*North-east*	225	14.59	0.37	36.92	61.36
Reygersdal Ave. DBM	*Northward*	300	25.17	0.36	41.72	51.35

The flow properties (flow rates, velocity, peak demand and static head) are within the acceptable standard as suggested by Redbook 2019. Therefore, the water network seems to have sufficient capacity to accommodate this development.

BULK WATER

There is no infrastructure within and across the boundaries of the proposed development under the control of the City of Cape Town's Bulk Water Branch. The bulk supply system has sufficient water resources, storage and conveyance capacity to supply the estimated average annual daily demand (AADD) of 3.55 kL/day during construction phase and 1.50 kL/day for operating this proposed development.

SEWER RETICULATION

The proposed development falls within the catchment of Wesfluer Wastewater Treatment Works (WwTW).

The City's sewer network model indicates a 300 mm Ø gravity sewer main, gravitating towards the southwest plain along the western boundary of the proposed site. This sewer conveys sewage from the existing households northwards Bon Aventura Avenue via the existing network to the Wesfluer Domestic WwTW. The network includes a 225 mm Ø gravity sewer collector from the southwest corner of the proposed site, via the western section of the Thomas Williams Crescent and along the John van Niekerk Street until the 450 mm Ø bulk sewer main at the corner of John Van Niekerk Street and Gerwyn Owen Street. This sewer gravitates further, following John Van Niekerk Street until it reaches a 525 mm Ø bulk sewer main in Mission Expressway. The 525 mm Ø bulk sewer main gravitates southwest along the Mission Expressway via the 675 mm Ø bulk sewer main before its final discharge at the Wesfluer WwTW.

The applicant proposed that the effluent from this site would be stored on-site in watertight concrete structures (conservancy tanks) and disposed of at the local municipal sewage treatment works (Wesfluer WwTW). The use of conservancy Tanks may require a water use license from the National Department of Water and Sanitation.

However, there seems to be sufficient relative spare capacity in the sewer network to accommodate this development.

The development will have to conform to all pollution control bylaws.

WASTEWATER TREATMENT WORKS

The sewer network falls within the catchment of the Wesfleur Wastewater Treatment Works (WwTW), which has sufficient spare capacity to accommodate the estimated total sewer load of 7.3 KL/day.

If there are any enquiries about Wesfleur WwTW available spare capacity, the applicant may contact the head of wastewater infrastructure planning and development, Sven Sotemann (Sven.Sotemann@capetown.gov.za).

CONCLUSION

Based on our system data, there appears to be sufficient capacity within the existing water and sanitation infrastructure to accommodate the proposed development.

The Wesfleur Wastewater Treatment Works has sufficient capacity to accommodate to accommodate the proposed development.

CONDITIONS

The development may proceed subject to the following conditions:

1. Development contributions will be payable as per the DC policy, to be quantified by the Reticulation District Head.
2. All costs relating to connection, alterations to or provision of new water and sewerage services will be for the account of the applicant.
3. The developer is to provide evidence of water saving measures incorporated in the development.

4. All link services need to be in place prior to the occupation of any building.
5. The use of conservancy Tanks may require a water use license from the National Department of Water and Sanitation.
6. The effluent for washing the PV panels may need testing and treatment if necessary before disposal to the Wesfleur WwTW.

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. The owner is responsible for application for the new water meter or sewer connection including for relocation, at the standard tariff to the Reticulation District Head.
3. Water and Sanitation municipal services are to be designed according to Departmental Service Standards and be approved prior to construction.
4. Handover of any municipal water and sanitation services will be subject to quality control during construction

GENERAL/ DISCLAIMER

1. Information provided is based on the best available data.

Yours Faithfully

2021/09/30

X

Signed by: Shamile Manie

On behalf of

Zolile Basholo

DIRECTOR: TECHNICAL SERVICES WATER & SANITATION DEPARTMENT