

Riebeeck Kasteel Distribution System - Input Variables for Water Requirement Model								
Parameter / Variable	Year	Income Categorization				Com. & Ind. <sup>(D)</sup>	Other & Farms <sup>(E)</sup>	Total
		HI	MI	LI	Sub- Total			
		Units are presented in brackets with the "Parameter Description" - First Column						
Population <sup>(A)</sup>	2016	1616	4053	1008	6678			
	2021	1784	4814	2767	9366			
	2026	1970	5718	5448	13136			
	2031	2175	6791	9458	18424			
	2036	2401	8065	15374	25840			
	2041	2651	9579	24012	36242			
Growth (%/year)		Growth in Population				Growth in Demand		
	2016-2021	2.00%	3.50%	22.38%	7.00%	4%	2%	
	2021-2026	2.00%	3.50%	14.51%	7.00%	4%	2%	
	2026-2031	2.00%	3.50%	11.66%	7.00%	4%	2%	
	2031-2036	2.00%	3.50%	10.20%	7.00%	4%	2%	
2036-2041	2.00%	3.50%	9.33%	7.00%	4%	2%		
Unit Demand (l/c/d) <sup>(B)</sup>	2016	95.0	65.0	40.0	-	-	-	-
Average Annual Daily Water Requirement (Kl/d - NRW Excluded)	2016	154	263	40		61	54	572
	2021	169	313	111		75	59	727
	2026	187	372	218		91	65	933
	2031	207	441	378		110	72	1209
	2036	228	524	615		134	80	1581
	2041	252	623	960		163	88	2086
NRW (%) <sup>(C)</sup>	2016	17.2	17.2	17.2		17.2	17.2	
	2021	10.0	10.0	10.0		10.0	10.0	
	2026	10.0	10.0	10.0		10.0	10.0	
	2031	10.0	10.0	10.0		10.0	10.0	
	2036	10.0	10.0	10.0		10.0	10.0	
	2041	10.0	10.0	10.0		10.0	10.0	
Average Annual Daily Water Requirement (Kl/d)	2016	185	318	49		74	65	691
	2021	188	348	123		83	66	808
	2026	208	413	242		101	73	1037
	2031	230	490	420		123	80	1343
	2036	253	582	683		149	89	1757
	2041	280	692	1067		182	98	2318
Average Peak Month Daily Water Requirement (Kl/d)	2016	293	503	77		117	102	1092
	2021	298	549	194		131	104	1276
	2026	329	652	383		159	115	1638
	2031	363	775	664		194	127	2122
	2036	400	920	1080		236	140	2776
	2041	442	1093	1686		287	155	3663
Peak Day Water Requirement (Kl/d)	2016	366	628	96		146	128	1365
	2021	372	687	243		164	130	1595
	2026	411	816	478		199	144	2047
	2031	453	969	830		242	159	2653
	2036	501	1150	1349		295	175	3470
	2041	553	1366	2108		359	193	4579
Total Annual Water Requirement (Kl/year)	2016	67673	116140	17779		27022	23672	252287
	2021	68740	126903	44894		30247	24045	294828
	2026	75894	150721	88384		36800	26548	378347
	2031	83793	179009	153430		44772	29311	490316
	2036	92515	212606	249394		54473	32361	641349
	2041	102143	252510	389526		66274	35730	846184
Peak Month Factor <sup>(F)</sup>	1.58							
Peak Day Factor <sup>(G)</sup>	1.25							

Notes :



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References:

(A) - Total population based on Census 2011 data. Future estimated growth agreed with Municipality in January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2016 to June 2017. Estimated 7.2 % reduction of NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 61.3 kl/d.

(E) - Others and Farms: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 53.7 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2012 to June 2017 data.

(G) - Peak Day Factor : Estimated

Riebeek Kasteel Distribution System Projected Water Requirement (Kl/a)								
Year *	Measured Potable Water Requirement (System Input)	Projected Water Requirement from model	2% Annual growth on 2016/2017 Water Requirement	4% Annual growth on 2016/2017 Water Requirement	Other Projections			Annual WWTW Flows (Estimated from Billed Metered Consumption Data)
					DWS's Reconciliation Strategy (February 2016)			
					Low	Medium	High	
2001	120,933							
2002	157,215							
2003	209,142							76,931
2004	162,254							63,992
2005	218,651							76,316
2006	226,158							85,438
2007	241,840							101,498
2008	257,634							108,821
2009	222,052							103,236
2010	263,467							114,418
2011	253,825							111,779
2012	284,585							110,726
2013	300,867							116,107
2014	329,440							127,364
2015	287,140				330,000	330,000	330,000	114,282
2016	250,636	252,287	250,636	250,636				98,969
2021		294,828	276,722	304,937	485,400	499,200	514,200	
2026		378,347	305,524	371,003	664,800	700,200	738,200	
2031		490,316	337,323	451,381	922,300	997,000	1,078,500	
2036		641,349	372,432	549,174	1,293,800	1,437,000	1,596,000	
2041		846,184	411,195	688,155				

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2016 is therefore from July 2016 up to June 2017.

