

Riebeeck Kasteel Distribution System - Input Variables for Water Requirement Model								
Parameter / Variable	Year	Income Categorization				Com. & Ind. ^(D)	Other & Farms ^(E)	Total
		High Income	Middle Income	Low Income	Sub- Total			
Units are presented in brackets with the "Parameter Description" - First Column								
Population ^(A)	2020	2118	5313	1322	8753	-	-	-
	2025	2339	6310	3628	12276			
	2030	2582	7495	7142	17218			
	2035	2851	8901	12398	24150			
	2040	3148	10572	20152	33871			
	2045	3475	12556	31475	47506			
Growth (%/year)	Growth in Population					Growth in Demand		
	2020-2025	2.00%	3.50%	22.38%	7.00%	4%	2%	-
	2025-2030	2.00%	3.50%	14.51%	7.00%	4%	2%	
	2030-2035	2.00%	3.50%	11.66%	7.00%	4%	2%	
	2035-2040	2.00%	3.50%	10.20%	7.00%	4%	2%	
	2040-2045	2.00%	3.50%	9.33%	7.00%	4%	2%	
Unit Demand (l/c/d) ^(B)	2020	75.0	50.0	35.0	-	-	-	
Average Annual Daily Water Requirement (Kl/d - NRW Excluded)	2020	159	266	46	-	30	57	557
	2025	175	316	127		36	63	717
	2030	194	375	250		44	69	932
	2035	214	445	434		53	77	1223
	2040	236	529	705		65	85	1619
	2045	261	628	1102		79	93	2162
NRW (%) ^(C)	2020	20.6	20.6	20.6	-	20.6	20.6	-
	2025	15.0	15.0	15.0		15.0	15.0	
	2030	13.8	13.8	13.8		13.8	13.8	
	2035	12.5	12.5	12.5		12.5	12.5	
	2040	11.3	11.3	11.3		11.3	11.3	
	2045	10.0	10.0	10.0		10.0	10.0	
Average Annual Daily Water Requirement (Kl/d)	2020	200	335	58	-	37	72	702
	2025	206	371	149		42	74	843
	2030	225	434	290		51	80	1080
	2035	244	509	496		61	88	1397
	2040	266	596	795		73	95	1825
	2045	290	698	1224		88	104	2403
Average Peak Month Daily Water Requirement (Kl/d)	2020	282	472	82	-	53	101	990
	2025	291	523	211		60	104	1189
	2030	317	613	409		72	113	1523
	2035	345	717	699		86	123	1970
	2040	375	840	1121		103	134	2573
	2045	408	984	1726		124	146	3388
Peak Day Water Requirement (Kl/d)	2020	353	590	103	-	66	126	1237
	2025	364	654	263		75	130	1486
	2030	396	766	511		90	142	1904
	2035	431	896	874		107	154	2463
	2040	469	1050	1401		129	168	3216
	2045	510	1229	2157		155	183	4235
Total Annual Water Requirement (Kl/year)	2020	73030	122119	21265	-	13607	26157	256178
	2025	75319	135484	54520		15464	26977	307763
	2030	81953	158580	105780		18542	29353	394207
	2035	89190	185653	181004		22237	31945	510029
	2040	97086	217391	290070		26674	34773	665994
	2045	105702	254607	446766		32002	37859	876936
Peak Month Factor ^(F)	1.41							
Peak Day Factor ^(G)	1.25							

Notes :



TO USE THIS SHEET, FILL IN THE VARIABLES IN THE SHADED BLOCKS ABOVE

References:

- (A) - Projected population for 2020/2021 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.
- (B) - Residential unit demands estimated.
- (C) - Non Revenue Water (NRW): Calculated NRW from July 2020 to June 2021. Estimated 5.6 % reduction of NRW over the next five years.
- (D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2020 to June 2021. Average 29.6 kl/d.
- (E) - Others and Farms: Calculated from Billed Metered Consumption data for the period July 2020 to June 2021. Average 56.9 kl/d.
- (F) - Peak Month Factor: Maximum value calculated from July 2016 to June 2021 data.
- (G) - Peak Day Factor : Estimated

Riebeeck Kasteel Distribution System Projected Water Requirement (KI/a)							Wastewater Flow	
Year *	Measured Potable Water Requirement (System Input)	Projected Water Requirement from model	2% Annual growth on 2020/2021 Water Requirement	4% Annual growth on 2020/2021 Water Requirement	Other Projections			Annual Wastewater Flows (Estimated from Billed Metered Consumption Data)
					DWS's Reconciliation Strategy (March 2016)			
					Low	Medium	High	
1995	192 784							
1996	157 602							
1997	176 707							
1998	187 919							
1999	160 439							
2000	157 930							
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							114 282
2016	250 636				330 000	330 000	330 000	98 969
2017	169 061							55 752
2018	183 446							75 399
2019	223 405							83 782
2020	256 218	256 178	256 218	256 218				97 035
2025		307 763	282 885	311 728	619 000	648 000	679 000	
2030		394 207	312 328	379 265	848 000	909 000	975 000	
2035		510 029	344 836	461 434	1 219 500	1 349 000	1 492 500	
2040		665 994	380 726	561 405	1 591 000	1 789 000	2 010 000	
2045		876 936	420 353	683 035				

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 2020 is therefore from July 2020 up to June 2021.

