



CONSELHO MUNICIPAL DE MAPUTO



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ANEXO I - DIMENSIONAMENTO HIDRÁULICO

MALANGA – VALA 1

Critérios de Dimensionamento (Rede Pluvial)

Material da vala (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D [T=5 anos] (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	1	BL	39.13

Velocidade mínima [T=2] (m/s)	Velocidade máxima [T=2] (m/s)	Inclinação mínima (-)	Inclinação máxima (-)
0.9	3.0	0.0030	0.1500

Período de Retorno (anos)	Parâmetros das Curvas IDF	
	a	b
2	614.15	-0.61
5	798.68	-0.59



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Caudais de Dimensionamento (Rede Pluvial), T=2 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
VALA 1.2								
1	5.88	7.50	0.56	0.40	0.000	0.226	501.62	113.21
2	4.65	7.53	1.00	0.00	0.226	0.000	500.21	112.89
3	10.55	7.57	0.50	0.35	0.226	0.173	498.93	198.89
4	6.76	7.66	1.00	0.00	0.399	0.000	495.33	197.45
5	2.43	7.70	1.00	0.00	0.399	0.000	493.59	196.76
6	0.91	7.72	1.00	0.00	0.399	0.000	493.06	196.55
7	0.82	7.72	1.00	0.00	0.399	0.000	492.78	196.44
VALA 1.1								
8	1.71	7.50	0.50	0.35	0.399	0.173	501.62	86.76
9	9.49	7.51	1.00	0.00	0.572	0.000	501.04	86.65
10	1.30	7.59	1.00	0.00	0.572	0.000	498.06	86.14
11	17.07	7.60	1.00	0.00	0.572	0.000	497.71	86.08
12	2.54	7.73	1.00	0.00	0.572	0.000	492.38	85.16
13	1.69	7.75	1.00	0.00	0.572	0.000	491.69	85.04
14	1.50	7.76	1.00	0.00	0.572	0.000	491.24	84.96

Caudais de Dimensionamento (Rede Pluvial), T=5 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
VALA 1.2								
1	5.88	7.50	0.56	0.40	0.000	0.226	670.55	151.33
2	4.65	7.53	1.00	0.00	0.226	0.000	668.86	150.95
3	10.55	7.56	0.50	0.35	0.226	0.173	667.32	266.01
4	6.76	7.65	1.00	0.00	0.399	0.000	662.89	264.25
5	2.43	7.69	1.00	0.00	0.399	0.000	660.77	263.40
6	0.91	7.70	1.00	0.00	0.399	0.000	660.13	263.15
7	0.82	7.71	1.00	0.00	0.399	0.000	659.78	263.01
VALA 1.1								
8	1.71	7.50	0.50	0.35	0.399	0.173	670.55	115.97
9	9.49	7.51	1.00	0.00	0.572	0.000	669.85	115.85
10	1.30	7.58	1.00	0.00	0.572	0.000	666.28	115.23
11	17.07	7.59	1.00	0.00	0.572	0.000	665.86	115.16
12	2.54	7.71	1.00	0.00	0.572	0.000	659.46	114.05
13	1.69	7.73	1.00	0.00	0.572	0.000	658.62	113.91
14	1.50	7.74	1.00	0.00	0.572	0.000	658.08	113.81



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Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=2 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m²)	Inclin Troço (%)
Vala 1.2										
1	1	2	0.400	0.400	90.0	113.21	2.80	0.101	33.62	5.11
2	2	3	0.400	0.400	90.0	112.89	2.44	0.116	24.73	3.44
3	3	4	0.400	0.500	90.0	198.89	1.94	0.256	13.58	1.23
4	4	5	0.400	0.500	90.0	197.45	2.54	0.194	24.32	2.51
5	5	6	0.400	0.442	90.0	196.76	2.96	0.166	33.86	3.80
6	6	7	0.400	0.256	90.0	196.55	2.09	0.236	15.92	1.50
7	7	BL	0.400	0.000	90.0	196.44	2.09	0.235	15.91	1.50
Vala 1.1										
10	9	10	0.400	0.400	90.0	86.76	1.97	0.110	16.33	2.35
11	10	11	0.400	0.400	90.0	86.65	2.13	0.101	19.49	2.95
12	11	12	0.400	0.400	90.0	86.14	2.49	0.087	27.38	4.62
13	12	13	0.400	0.400	90.0	86.08	2.09	0.103	18.72	2.81
14	13	14	0.400	0.400	90.0	85.16	2.35	0.091	24.14	3.94
15	14	15	0.400	0.400	90.0	85.04	2.41	0.088	24.91	4.15
16	15	3	0.400	0.000	90.0	84.96	2.40	0.089	24.09	4.00

Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=5 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m²)	Inclin Troço (%)
Vala 1.2										
1	1	2	0.400	0.400	90.0	151.33	3.06	0.124	38.31	5.11
2	2	3	0.400	0.400	90.0	150.95	2.65	0.142	28.05	3.44
3	3	4	0.400	0.500	90.0	266.01	2.06	0.322	14.91	1.23
4	4	5	0.400	0.500	90.0	264.25	2.72	0.242	27.04	2.51
5	5	6	0.400	0.442	90.0	263.40	3.19	0.207	37.89	3.80
6	6	7	0.400	0.256	90.0	263.15	2.23	0.295	17.55	1.50
7	7	BL	0.400	0.000	90.0	263.01	2.23	0.295	17.55	1.50
Vala 1.1										
10	9	10	0.400	0.400	90.0	115.97	0.00	0.000	18.55	2.35
11	10	11	0.400	0.400	90.0	115.85	2.15	0.135	18.55	2.95
12	11	12	0.400	0.400	90.0	115.23	2.33	0.124	22.20	4.62
13	12	13	0.400	0.400	90.0	115.16	2.72	0.106	31.36	2.81
14	13	14	0.400	0.400	90.0	114.05	2.28	0.126	21.33	3.94
15	14	15	0.400	0.400	90.0	113.91	2.57	0.111	27.63	4.15
16	15	3	0.400	0.000	90.0	113.81	2.61	0.109	28.71	4.00



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Elementos do Perfil Longitudinal (Rede Pluvial)

Vala	Perfil Mont.	Jus.	Larg.	Compr.	Inclin. Troço	Cota Terreno		Cota Soleira		Prof. Escav.	
(troço)	(-)	(-)	(m)	(m)	(%)	Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)
Vala 1.2											
1	1	2	0.40	5.88	5.11	40.41	40.11	40.01	39.71	0.40	0.40
2	2	3	0.40	4.65	3.44	40.11	40.05	39.71	39.55	0.40	0.50
3	3	4	0.40	10.55	1.23	40.05	39.92	39.55	39.42	0.50	0.50
4	4	5	0.40	6.76	2.51	39.92	39.75	39.42	39.25	0.50	0.50
5	5	6	0.40	2.43	3.80	39.75	39.60	39.25	39.16	0.50	0.44
6	6	7	0.40	0.91	1.50	39.60	39.40	39.16	39.14	0.44	0.26
7	7	BL	0.40	0.82	1.50	39.40	39.13	39.14	39.13	0.26	0.00
Vala 1.1											
10	9	10	0.40	1.71	2.35	41.14	41.14	40.74	40.70	0.40	0.44
11	10	11	0.40	9.49	2.95	41.10	41.10	40.70	40.42	0.40	0.68
12	11	12	0.40	1.30	4.62	40.82	40.82	40.42	40.36	0.40	0.46
13	12	13	0.40	17.07	2.81	40.76	40.76	40.36	39.88	0.40	0.88
14	13	14	0.40	2.54	3.94	40.28	40.28	39.88	39.78	0.40	0.50
15	14	15	0.40	1.69	4.15	40.18	40.18	39.78	39.71	0.40	0.47
16	15	3	0.40	1.50	4.00	40.11	40.11	39.71	39.65	0.40	0.46



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MALANGA – VALA 2

Critérios de Dimensionamento (Rede Pluvial)

Material da vala (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D [T=5 anos] (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	1	4	37.00

Velocidade mínima [T=2] (m/s)	Velocidade máxima [T=2] (m/s)	Inclinação mínima (-)	Inclinação máxima (-)
0.9	3.0	0.0030	0.1500

Período de Retorno (anos)	Parâmetros das Curvas IDF	
	a	b
2	614.15	-0.61
5	798.68	-0.59



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Caudais de Dimensionamento (Rede Pluvial), T=2 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1	10.00	15.90	0.52	2.58	0.000	1.343	317.78	426.65
2	10.00	15.96	1.00	0.00	1.343	0.000	317.12	425.74
3	0.80	16.02	1.00	0.00	1.343	0.000	316.46	424.82

Caudais de Dimensionamento (Rede Pluvial), T=5 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1	10.00	15.90	0.52	2.58	0.000	1.343	429.18	576.22
2	10.00	15.96	1.00	0.00	1.343	0.000	428.38	575.10
3	0.80	16.01	1.00	0.00	1.343	0.000	427.56	573.97



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Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=2 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)
1	1	2	0.500	0.480	90.0	426.65	2.99	0.286	30.47	2.33
2	2	3	0.500	0.480	90.0	425.74	2.93	0.290	29.28	2.22
3	3	4	0.500	0.000	90.0	424.82	2.93	0.290	29.26	2.22

Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=5 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)
1	1	2	0.500	0.480	90.0	576.22	3.20	0.360	33.74	2.33
2	2	3	0.500	0.480	90.0	575.10	3.14	0.367	32.40	2.22
3	3	4	0.500	0.000	90.0	573.97	3.14	0.366	32.38	2.22

Elementos do Perfil Longitudinal (Rede Pluvial)

Vala (troço)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	Compr. (m)	Inclin. Troço (%)	Cota Terreno		Cota Soleira		Prof. Escav.	
						Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)
1	1	2	0.40	10.00	2.33	38.11	37.84	37.47	37.24	0.64	0.60
2	2	3	0.40	10.00	2.22	37.84	37.60	37.24	37.02	0.60	0.58
3	3	4	0.40	0.80	2.22	37.60	37.00	37.02	37.00	0.58	0.00



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MALANGA – VALA 3

Critérios de Dimensionamento (Rede Pluvial)

Material da vala (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D [T=5 anos] (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	1	4	36.47

Velocidade mínima [T=2] (m/s)	Velocidade máxima [T=2] (m/s)	Inclinação mínima (-)	Inclinação máxima (-)
0.9	3.0	0.0030	0.1500

Período de Retorno (anos)	Parâmetros das Curvas IDF	
	a	b
2	614.15	-0.61
5	798.68	-0.59



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Caudais de Dimensionamento (Rede Pluvial), T=2 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1	10.00	16.40	0.56	3.45	0.000	1.932	311.86	602.58
2	4.73	16.46	1.00	0.00	1.932	0.000	311.19	601.28
3	0.50	16.49	1.00	0.00	1.932	0.000	310.87	600.67

Caudais de Dimensionamento (Rede Pluvial), T=5 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1	10.00	16.40	0.56	3.45	0.000	1.932	421.37	814.17
2	4.73	16.46	1.00	0.00	1.932	0.000	420.54	812.57
3	0.50	16.48	1.00	0.00	1.932	0.000	420.14	811.81



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Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=2 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m²)	Inclin Troço (%)
1	1	2	0.600	0.604	90.0	602.58	2.85	0.352	26.07	1.64
2	2	3	0.600	0.602	90.0	601.28	2.85	0.351	26.05	1.64
3	3	4	0.600	0.000	90.0	600.67	2.85	0.351	26.04	1.64

Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=5 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m²)	Inclin Troço (%)
1	1	2	0.600	0.604	90.0	814.17	3.05	0.444	28.83	1.64
2	2	3	0.600	0.602	90.0	812.57	3.05	0.444	28.82	1.64
3	3	4	0.600	0.000	90.0	811.81	3.05	0.443	28.81	1.64

Elementos do Perfil Longitudinal (Rede Pluvial)

Vala (troço)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	Compr. (m)	Inclin. Troço (%)	Cota Terreno		Cota Soleira		Prof. Escav.	
						Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)
1	1	2	0.60	10.00	1.64	37.38	37.16	36.72	36.56	0.66	0.60
2	2	3	0.60	4.73	1.64	37.16	37.08	36.56	36.48	0.60	0.60
3	3	4	0.60	0.50	1.64	37.08	36.47	36.48	36.47	0.60	0.00



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MALANGA – VALA 4

Critérios de Dimensionamento (Rede Pluvial)

Material da vala (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D [T=5 anos] (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	1	10	35.32

Velocidade mínima [T=2] (m/s)	Velocidade máxima [T=2] (m/s)	Inclinação mínima (-)	Inclinação máxima (-)
0.9	3.0	0.0030	0.1500

Período de Retorno (anos)	Parâmetros das Curvas IDF	
	a	b
2	614.15	-0.61
5	798.68	-0.59



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Caudais de Dimensionamento (Rede Pluvial), T=2 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1	6.26	15.00	0.52	1.13	0.000	0.586	329.23	192.96
2	3.74	15.05	1.00	0.00	0.586	0.000	328.62	192.60
3	5.74	15.07	1.00	0.00	0.586	0.000	328.26	192.39
4	4.26	15.12	1.00	0.00	0.586	0.000	327.68	192.05
5	10.00	15.15	1.00	0.00	0.586	0.000	327.25	191.80
6	10.00	15.22	1.00	0.00	0.586	0.000	326.27	191.22
7	0.84	15.30	1.00	0.00	0.586	0.000	325.28	190.64
8	4.24	15.31	1.00	0.00	0.586	0.000	325.19	190.59
9	0.50	15.35	1.00	0.00	0.586	0.000	324.66	190.28

Caudais de Dimensionamento (Rede Pluvial), T=5 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1	6.26	15.00	0.52	1.13	0.000	0.586	444.30	260.40
2	3.74	15.04	1.00	0.00	0.586	0.000	443.55	259.96
3	5.74	15.07	1.00	0.00	0.586	0.000	443.10	259.70
4	4.26	15.11	1.00	0.00	0.586	0.000	442.39	259.28
5	10.00	15.14	1.00	0.00	0.586	0.000	441.85	258.97
6	10.00	15.21	1.00	0.00	0.586	0.000	440.65	258.26
7	0.84	15.28	1.00	0.00	0.586	0.000	439.42	257.54
8	4.24	15.29	1.00	0.00	0.586	0.000	439.32	257.48
9	0.50	15.33	1.00	0.00	0.586	0.000	438.66	257.10



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Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=2 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)
1	1	2	0.400	0.500	0.5	192.96	2.28	0.212	19.35	1.92
2	2	3	0.400	0.500	0.4	192.60	2.26	0.213	18.93	1.87
3	3	4	0.400	0.500	0.4	192.39	2.20	0.219	17.86	1.74
4	4	5	0.400	0.500	0.4	192.05	2.15	0.224	17.01	1.64
5	5	6	0.400	0.500	0.4	191.80	2.22	0.216	18.32	1.80
6	6	7	0.400	0.500	0.4	191.22	2.18	0.219	17.60	1.70
7	7	8	0.400	0.502	0.4	190.64	2.18	0.219	17.58	2.87
8	8	9	0.400	0.500	0.4	190.59	1.72	0.277	10.58	2.87
9	9	10	0.400	0.000	0.4	190.28	1.72	0.276	10.58	2.87

Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=5 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)
1	1	2	0.400	0.500	0.5	260.40	2.45	0.266	21.49	1.92
2	2	3	0.400	0.500	0.4	259.96	2.42	0.268	21.02	1.87
3	3	4	0.400	0.500	0.4	259.70	2.35	0.276	19.82	1.74
4	4	5	0.400	0.500	0.4	259.28	2.30	0.282	18.85	1.64
5	5	6	0.400	0.500	0.4	258.97	2.38	0.272	20.34	1.80
6	6	7	0.400	0.500	0.4	258.26	2.34	0.276	19.52	1.70
7	7	8	0.400	0.502	0.4	257.54	2.34	0.276	19.50	2.87
8	8	9	0.400	0.500	0.4	257.48	1.83	0.351	11.62	2.87
9	9	10	0.400	0.000	0.4	257.10	1.83	0.351	11.61	2.87



CONSELHO MUNICIPAL DE MAPUTO

Elementos do Perfil Longitudinal (Rede Pluvial)

Vala (troço)	Perfil Mont.	Jus.	Larg.	Compr.	Inclin. Troço	Cota Terreno		Cota Soleira		Prof. Escav.	
	(-)	(-)	(m)	(m)	(%)	Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)
1	1	2	0.40	6.26	1.92	36.64	36.52	36.14	36.02	0.50	0.50
2	2	3	0.40	3.74	1.87	36.52	36.45	36.02	35.95	0.50	0.50
3	3	4	0.40	5.74	1.74	36.45	36.35	35.95	35.85	0.50	0.50
4	4	5	0.40	4.26	1.64	36.35	36.28	35.85	35.78	0.50	0.50
5	5	6	0.40	10.00	1.80	36.28	36.10	35.78	35.60	0.50	0.50
6	6	7	0.40	10.00	1.70	36.10	35.93	35.60	35.43	0.50	0.50
7	7	8	0.40	0.84	2.87	35.93	35.91	35.43	35.41	0.50	0.50
8	8	9	0.40	4.24	2.87	35.91	35.84	35.36	35.32	0.55	0.52
9	9	10	0.40	0.50	2.87	35.84	35.32	35.32	35.32	0.52	0.00



CONSELHO MUNICIPAL DE MAPUTO

MALANGA – VALA 5

Critérios de Dimensionamento (Rede Pluvial)

Material da vala (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D [T=5 anos] (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	1	40	34.47

Velocidade mínima [T=2] (m/s)	Velocidade máxima [T=2] (m/s)	Inclinação mínima (-)	Inclinação máxima (-)
0.9	3.0	0.0030	0.1500

Período de Retorno (anos)	Parâmetros das Curvas IDF	
	a	b
2	614.15	-0.61
5	798.68	-0.59



CONSELHO MUNICIPAL DE MAPUTO

Caudais de Dimensionamento (Rede Pluvial), T=2 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1	10.00	5.00	0.56	0.23	0.000	0.127	641.73	81.58
2	10.00	5.08	1.00	0.00	0.127	0.000	635.83	80.83
3	5.16	5.15	1.00	0.00	0.127	0.000	630.06	80.09
4	4.84	5.19	1.00	0.00	0.127	0.000	627.13	79.72
5	10.00	5.23	1.00	0.00	0.127	0.000	624.40	79.37
6	10.00	5.31	1.00	0.00	0.127	0.000	618.86	78.67
7	3.30	5.39	0.55	0.17	0.127	0.095	613.42	136.51
8	6.70	5.41	1.00	0.00	0.223	0.000	611.90	136.18
9	10.00	5.45	1.00	0.00	0.223	0.000	608.87	135.50
10	10.00	5.52	1.00	0.00	0.223	0.000	604.58	134.55
11	10.00	5.58	1.00	0.00	0.223	0.000	600.22	133.58
12	2.33	5.65	1.00	0.00	0.223	0.000	595.68	132.57
13	7.67	5.67	1.00	0.00	0.223	0.000	594.76	132.36
14	10.00	5.71	1.00	0.00	0.223	0.000	592.15	131.78
15	10.00	5.76	0.53	0.28	0.223	0.150	588.63	219.25
16	10.00	5.81	1.00	0.00	0.372	0.000	585.60	218.12
17	10.00	5.86	1.00	0.00	0.372	0.000	582.71	217.05
18	0.12	5.91	1.00	0.00	0.372	0.000	579.94	216.02
19	9.88	5.91	1.00	0.00	0.372	0.000	579.91	216.00
20	8.73	5.95	1.00	0.00	0.372	0.000	577.29	215.03
21	1.27	5.99	1.00	0.00	0.372	0.000	575.06	214.20
22	2.39	6.00	1.00	0.00	0.372	0.000	574.65	214.05
23	7.57	6.01	1.00	0.00	0.372	0.000	574.06	213.83
24	0.04	6.04	1.00	0.00	0.372	0.000	572.22	213.14
25	5.56	6.04	0.56	0.37	0.372	0.209	572.21	332.53
26	4.44	6.06	1.00	0.00	0.581	0.000	571.01	331.84
27	2.38	6.08	1.00	0.00	0.581	0.000	570.08	331.30
28	7.62	6.09	1.00	0.00	0.581	0.000	569.53	330.97
29	10.00	6.12	1.00	0.00	0.581	0.000	567.74	329.94
30	10.00	6.17	1.00	0.00	0.581	0.000	565.04	328.36
31	2.56	6.21	1.00	0.00	0.581	0.000	562.42	326.84
32	7.44	6.22	1.00	0.00	0.581	0.000	561.75	326.45
33	10.00	6.26	1.00	0.00	0.581	0.000	559.81	325.33
34	10.00	6.31	1.00	0.00	0.581	0.000	557.19	323.81
35	0.15	6.36	1.00	0.00	0.581	0.000	554.63	322.32
36	9.85	6.36	1.00	0.00	0.581	0.000	554.60	322.30
37	5.36	6.41	1.00	0.00	0.581	0.000	552.09	320.84
38	4.64	6.43	1.00	0.00	0.581	0.000	550.76	320.07
39	7.04	6.45	1.00	0.00	0.581	0.000	549.58	319.38



CONSELHO MUNICIPAL DE MAPUTO

Caudais de Dimensionamento (Rede Pluvial), T=5 anos

Vala (troço)	Compr. (m)	Tconc. (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1	10.00	5.00	0.56	0.23	0.000	0.127	853.10	108.45
2	10.00	5.07	1.00	0.00	0.127	0.000	846.07	107.55
3	5.16	5.14	1.00	0.00	0.127	0.000	839.17	106.68
4	4.84	5.18	1.00	0.00	0.127	0.000	835.66	106.23
5	10.00	5.21	1.00	0.00	0.127	0.000	832.40	105.81
6	10.00	5.28	1.00	0.00	0.127	0.000	825.76	104.97
7	3.30	5.35	0.55	0.17	0.127	0.095	819.22	182.31
8	6.70	5.37	1.00	0.00	0.223	0.000	817.38	181.90
9	10.00	5.41	1.00	0.00	0.223	0.000	813.70	181.09
10	10.00	5.47	1.00	0.00	0.223	0.000	808.49	179.92
11	10.00	5.53	1.00	0.00	0.223	0.000	803.19	178.75
12	2.33	5.60	1.00	0.00	0.223	0.000	797.65	177.51
13	7.67	5.61	1.00	0.00	0.223	0.000	796.53	177.26
14	10.00	5.65	1.00	0.00	0.223	0.000	793.36	176.56
15	10.00	5.70	0.53	0.28	0.223	0.150	789.08	293.92
16	10.00	5.75	1.00	0.00	0.372	0.000	785.36	292.53
17	10.00	5.79	1.00	0.00	0.372	0.000	781.81	291.21
18	0.12	5.83	1.00	0.00	0.372	0.000	778.41	289.94
19	9.88	5.83	1.00	0.00	0.372	0.000	778.37	289.93
20	8.73	5.88	1.00	0.00	0.372	0.000	775.16	288.73
21	1.27	5.91	1.00	0.00	0.372	0.000	772.42	287.71
22	2.39	5.92	1.00	0.00	0.372	0.000	772.03	287.57
23	7.57	5.92	1.00	0.00	0.372	0.000	771.31	287.30
24	0.04	5.95	1.00	0.00	0.372	0.000	769.05	286.46
25	5.56	5.95	0.56	0.37	0.372	0.209	769.03	446.91
26	4.44	5.97	1.00	0.00	0.581	0.000	767.55	446.05
27	2.38	5.99	1.00	0.00	0.581	0.000	766.40	445.38
28	7.62	6.00	1.00	0.00	0.581	0.000	765.70	444.98
29	10.00	6.03	1.00	0.00	0.581	0.000	763.10	443.47
30	10.00	6.08	1.00	0.00	0.581	0.000	759.80	441.55
31	2.56	6.12	1.00	0.00	0.581	0.000	756.50	439.63
32	7.44	6.13	1.00	0.00	0.581	0.000	755.66	439.15
33	10.00	6.17	1.00	0.00	0.581	0.000	753.21	437.72
34	10.00	6.21	1.00	0.00	0.581	0.000	749.93	435.81
35	0.15	6.26	1.00	0.00	0.581	0.000	746.73	433.96
36	9.85	6.26	1.00	0.00	0.581	0.000	746.69	433.93
37	5.36	6.30	1.00	0.00	0.581	0.000	743.55	432.11
38	4.64	6.33	1.00	0.00	0.581	0.000	741.89	431.14
39	7.04	6.35	1.00	0.00	0.581	0.000	740.40	430.28



CONSELHO MUNICIPAL DE MAPUTO

Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=2 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)
1	1	2	0.400	0.400	90.0	81.58	2.18	0.094	20.65	3.30
2	2	3	0.400	0.400	90.0	80.83	2.17	0.093	20.56	3.30
3	3	4	0.400	0.400	90.0	80.09	2.16	0.093	20.45	3.29
4	4	5	0.400	0.400	90.0	79.72	2.16	0.092	20.36	3.29
5	5	6	0.400	0.400	90.0	79.37	2.16	0.092	20.34	3.29
6	6	7	0.400	0.400	90.0	78.67	2.14	0.092	20.11	3.26
7	7	8	0.400	0.400	90.0	136.51	2.50	0.137	25.10	3.15
8	8	9	0.400	0.400	90.0	136.18	2.52	0.135	25.52	3.22
9	9	10	0.400	0.400	90.0	135.50	2.61	0.130	27.65	3.58
10	10	11	0.400	0.400	90.0	134.55	2.52	0.133	25.74	3.28
11	11	12	0.400	0.400	90.0	133.58	2.37	0.141	22.53	2.78
12	12	13	0.400	0.400	90.0	132.57	2.69	0.123	29.61	3.95
13	13	14	0.400	0.400	90.0	132.36	3.10	0.107	40.80	5.98
14	14	15	0.400	0.550	90.0	131.78	2.96	0.111	36.81	5.25
15	15	16	0.400	0.550	90.0	219.25	3.39	0.162	44.74	5.10
16	16	17	0.400	0.550	90.0	218.12	3.51	0.156	48.24	5.62
17	17	18	0.400	0.550	90.0	217.05	3.61	0.150	51.51	6.12
18	18	19	0.400	0.550	90.0	216.02	3.76	0.144	56.23	6.85
19	19	20	0.400	0.550	90.0	216.00	3.74	0.145	55.55	6.75
20	20	21	0.400	0.550	90.0	215.03	3.82	0.141	58.31	7.19
21	21	22	0.400	0.550	90.0	214.20	3.00	0.179	34.43	7.56
22	22	23	0.400	0.550	90.0	214.05	3.97	0.135	63.55	8.04
23	23	24	0.400	0.507	90.0	213.83	3.95	0.135	63.01	7.96
24	24	25	0.400	0.507	90.0	213.14	3.95	0.135	62.92	7.96
25	25	26	0.400	0.507	90.0	332.53	4.45	0.187	75.40	7.96
26	26	27	0.400	0.550	90.0	331.84	4.53	0.183	78.04	8.32
27	27	28	0.400	0.550	90.0	331.30	4.08	0.203	62.37	6.31
28	28	29	0.400	0.550	90.0	330.97	4.03	0.205	60.64	6.10
29	29	30	0.400	0.550	90.0	329.94	3.45	0.239	43.47	4.07
30	30	31	0.400	0.550	90.0	328.36	3.52	0.233	45.50	4.31
31	31	32	0.400	0.550	90.0	326.84	3.49	0.234	44.60	4.22
32	32	33	0.400	0.550	90.0	326.45	3.50	0.233	44.75	4.24
33	33	34	0.400	0.550	90.0	325.33	3.44	0.237	43.17	4.06
34	34	35	0.400	0.550	90.0	323.81	3.47	0.233	44.24	4.19
35	35	36	0.400	0.550	90.0	322.32	3.44	0.234	43.30	4.09
36	36	37	0.400	0.550	90.0	322.30	3.46	0.233	43.73	4.14
37	37	38	0.400	0.550	90.0	320.84	3.51	0.229	45.26	4.33
38	38	39	0.400	0.550	90.0	320.07	3.38	0.237	41.79	3.93
39	39	40	0.400	0.001	90.0	319.38	3.38	0.236	41.76	3.93



CONSELHO MUNICIPAL DE MAPUTO

Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=5 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m²)	Inclin Troço (%)
1	1	2	0.400	0.400	90.0	108.45	2.37	0.114	23.53	3.30
2	2	3	0.400	0.400	90.0	107.55	2.37	0.113	23.44	3.30
3	3	4	0.400	0.400	90.0	106.68	2.36	0.113	23.33	3.29
4	4	5	0.400	0.400	90.0	106.23	2.36	0.113	23.23	3.29
5	5	6	0.400	0.400	90.0	105.81	2.36	0.112	23.22	3.29
6	6	7	0.400	0.400	90.0	104.97	2.34	0.112	22.97	3.26
7	7	8	0.400	0.400	90.0	182.31	2.70	0.169	28.28	3.15
8	8	9	0.400	0.400	90.0	181.90	2.73	0.167	28.77	3.22
9	9	10	0.400	0.400	90.0	181.09	2.83	0.160	31.22	3.58
10	10	11	0.400	0.400	90.0	179.92	2.73	0.164	29.04	3.28
11	11	12	0.400	0.400	90.0	178.75	2.57	0.174	25.37	2.78
12	12	13	0.400	0.400	90.0	177.51	2.92	0.152	33.52	3.95
13	13	14	0.400	0.400	90.0	177.26	3.38	0.131	46.44	5.98
14	14	15	0.400	0.550	90.0	176.56	3.23	0.137	41.85	5.25
15	15	16	0.400	0.550	90.0	293.92	3.66	0.201	50.15	5.10
16	16	17	0.400	0.550	90.0	292.53	3.79	0.193	54.17	5.62
17	17	18	0.400	0.550	90.0	291.21	3.90	0.186	57.93	6.12
18	18	19	0.400	0.550	90.0	289.94	4.07	0.178	63.35	6.85
19	19	20	0.400	0.550	90.0	289.93	4.04	0.179	62.58	6.75
20	20	21	0.400	0.550	90.0	288.73	4.14	0.175	65.77	7.19
21	21	22	0.400	0.550	90.0	287.71	4.21	0.171	68.32	7.56
22	22	23	0.400	0.550	90.0	287.57	4.30	0.167	71.81	8.04
23	23	24	0.400	0.507	90.0	287.30	4.29	0.168	71.20	7.96
24	24	25	0.400	0.507	90.0	286.46	4.28	0.167	71.11	7.96
25	25	26	0.400	0.507	90.0	446.91	4.79	0.233	84.09	7.96
26	26	27	0.400	0.550	90.0	446.05	4.87	0.229	87.11	8.32
27	27	28	0.400	0.550	90.0	445.38	4.32	0.258	67.38	6.31
28	28	29	0.400	0.550	90.0	444.98	3.69	0.302	48.02	6.10
29	29	30	0.400	0.550	90.0	443.47	3.77	0.294	50.34	4.07
30	30	31	0.400	0.550	90.0	441.55	3.73	0.296	49.34	4.31
31	31	32	0.400	0.550	90.0	439.63	3.74	0.294	49.46	4.22
32	32	33	0.400	0.550	90.0	439.15	3.67	0.299	47.72	4.24
33	33	34	0.400	0.550	90.0	437.72	3.67	0.298	47.67	4.06
34	34	35	0.400	0.550	90.0	435.81	3.71	0.293	48.88	4.19
35	35	36	0.400	0.550	90.0	433.96	3.68	0.295	47.84	4.09
36	36	37	0.400	0.550	90.0	433.93	3.69	0.294	48.33	4.14
37	37	38	0.400	0.550	90.0	432.11	3.75	0.288	50.07	4.33
38	38	39	0.400	0.550	90.0	431.14	3.61	0.298	46.16	3.93
39	39	40	0.400	0.001	90.0	430.28	3.61	0.298	46.13	3.93



CONSELHO MUNICIPAL DE MAPUTO

Elementos do Perfil Longitudinal (Rede Pluvial)

Vala (troço)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	Compr. (m)	Inclin. Troço (%)	Cota Terreno		Cota Soleira		Prof. Escav.	
						Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)
1	1	2	0.40	10.00	3.30	47.37	47.04	46.97	46.64	0.40	0.40
2	2	3	0.40	10.00	3.30	47.04	46.71	46.64	46.31	0.40	0.40
3	3	4	0.40	5.16	3.29	46.71	46.54	46.31	46.14	0.40	0.40
4	4	5	0.40	4.84	3.29	46.54	46.38	46.14	45.98	0.40	0.40
5	5	6	0.40	10.00	3.29	46.38	46.06	45.98	45.66	0.40	0.40
6	6	7	0.40	10.00	3.26	46.06	45.73	45.66	45.33	0.40	0.40
7	7	8	0.40	3.30	3.15	45.73	45.63	45.33	45.23	0.40	0.40
8	8	9	0.40	6.70	3.22	45.63	45.41	45.23	45.01	0.40	0.40
9	9	10	0.40	10.00	3.58	45.41	45.05	45.01	44.65	0.40	0.40
10	10	11	0.40	10.00	3.28	45.05	44.72	44.65	44.32	0.40	0.40
11	11	12	0.40	10.00	2.78	44.72	44.45	44.32	44.05	0.40	0.40
12	12	13	0.40	2.33	3.95	44.45	44.35	44.05	43.95	0.40	0.40
13	13	14	0.40	7.67	5.98	44.35	44.04	43.95	43.49	0.40	0.55
14	14	15	0.40	10.00	5.25	44.04	43.52	43.49	42.97	0.55	0.55
15	15	16	0.40	10.00	5.10	43.52	43.01	42.97	42.46	0.55	0.55
16	16	17	0.40	10.00	5.62	43.01	42.45	42.46	41.90	0.55	0.55
17	17	18	0.40	10.00	6.12	42.45	41.84	41.90	41.29	0.55	0.55
18	18	19	0.40	0.12	6.85	41.84	41.83	41.29	41.28	0.55	0.55
19	19	20	0.40	9.88	6.75	41.83	41.16	41.28	40.61	0.55	0.55
20	20	21	0.40	8.73	7.19	41.16	40.53	40.61	39.98	0.55	0.55
21	21	22	0.40	1.27	7.56	40.53	40.44	39.98	39.89	0.55	0.55
22	22	23	0.40	2.39	8.04	40.44	40.24	39.89	39.69	0.55	0.55
23	23	24	0.40	7.57	7.96	40.24	39.60	39.69	39.09	0.55	0.51
24	24	25	0.40	0.04	7.96	39.60	39.60	39.09	39.09	0.51	0.51
25	25	26	0.40	5.56	7.96	39.60	39.20	39.09	38.65	0.51	0.55
26	26	27	0.40	4.44	8.32	39.20	38.83	38.65	38.28	0.55	0.55
27	27	28	0.40	2.38	6.31	38.83	38.68	38.28	38.13	0.55	0.55
28	28	29	0.40	7.62	6.10	38.68	38.21	38.13	37.66	0.55	0.55
29	29	30	0.40	10.00	4.07	38.21	37.80	37.66	37.25	0.55	0.55
30	30	31	0.40	10.00	4.31	37.80	37.37	37.25	36.82	0.55	0.55
31	31	32	0.40	2.56	4.22	37.37	37.27	36.82	36.72	0.55	0.55
32	32	33	0.40	7.44	4.24	37.27	36.95	36.72	36.40	0.55	0.55
33	33	34	0.40	10.00	4.06	36.95	36.54	36.40	35.99	0.55	0.55
34	34	35	0.40	10.00	4.19	36.54	36.13	35.99	35.58	0.55	0.55
35	35	36	0.40	0.15	4.09	36.13	36.12	35.58	35.57	0.55	0.55
36	36	37	0.40	9.85	4.14	36.12	35.71	35.57	35.16	0.55	0.55
37	37	38	0.40	5.36	4.33	35.71	35.48	35.16	34.93	0.55	0.55
38	38	39	0.40	4.64	3.93	35.48	35.35	34.93	34.75	0.55	0.60
39	39	40	0.40	7.04	3.93	35.35	34.47	34.75	34.47	0.60	0.00



CONSELHO MUNICIPAL DE MAPUTO

MALANGA – VALA EXISTENTE – MALANGA NORTE

Crítérios de Dimensionamento (Rede Pluvial)

Material da vala (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D [T=5 anos] (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	1	6	31.02

Velocidade mínima [T=2] (m/s)	Velocidade máxima [T=2] (m/s)	Inclinação mínima (-)	Inclinação máxima (-)
0.9	3.0	0.0030	0.1500

Período de Retorno (anos)	Parâmetros das Curvas IDF	
	a	b
2	614.15	-0.61
5	798.68	-0.59



CONSELHO MUNICIPAL DE MAPUTO

Caudais de Dimensionamento (Rede Pluvial), T=2 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1.0	73.0	15.00	0.54	1.22	0.000	0.657	329.23	216.19
1.1	32.0	15.54	1.00	0.00	0.657	0.000	322.27	211.61
2.0	69.1	15.77	0.54	2.02	0.657	1.088	319.35	557.18
3.0	24.3	16.22	0.55	4.08	1.745	2.244	313.97	1252.33
4.0	38.4	16.33	0.55	1.06	3.989	0.581	312.71	1428.93
5.0	59.5	16.47	0.36	0.36	4.570	0.131	311.04	751.36
5.0	59.5	16.47	0.36	0.36	4.700	0.131	311.04	751.36

Caudais de Dimensionamento (Rede Pluvial), T=5 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1.0	73.0	15.00	0.54	1.22	0.000	0.657	444.30	291.74
1.1	32.0	15.49	1.00	0.00	0.657	0.000	435.96	286.27
2.0	69.1	15.70	0.54	2.02	0.657	1.088	432.41	754.45
3.0	24.3	16.11	0.55	4.08	1.745	2.244	425.92	1698.87
4.0	38.4	16.21	0.55	1.06	3.989	0.581	424.35	1939.08
5.0	59.5	16.34	0.36	0.36	4.570	0.131	422.27	1020.05
5.0	59.5	16.34	0.36	0.36	4.700	0.131	422.27	1020.05



CONSELHO MUNICIPAL DE MAPUTO

Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=2 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)
1.0	1.0	1.1	0.800	0.80	90.0	216.19	2.27	0.119	19.83	0.02
1.1	1.1	2.0	0.600	1.00	53.1	211.61	2.28	0.133	21.50	0.02
2.0	2.0	3.0	1.200	1.00	59.0	557.18	2.57	0.167	23.24	0.02
3.0	3.0	4.0	0.650	0.85	51.5	1252.33	3.76	0.357	51.76	0.02
4.0	4.0	5.0	0.650	0.85	51.5	1428.93	4.43	0.348	71.97	0.04
5.0	5.0	6.0	0.650	0.40	90.0	751.36	2.29	0.505	15.66	0.01
5.0	5.0	6.0	0.650	0.40	90.0	751.36	2.29	0.505	15.66	0.01

Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=5 anos

Troço (-)	Perfil Mont. (-)	Jus. (-)	Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)
1.0	1.00	1.10	0.800	0.80	90.0	291.74	2.50	0.146	23.04	0.02
1.1	1.10	2.00	0.600	1.00	53.1	286.27	2.49	0.160	24.84	0.02
2.0	2.00	3.00	1.200	1.00	59.0	754.45	2.84	0.201	27.12	0.02
3.0	3.00	4.00	0.650	0.85	51.5	1698.87	4.03	0.426	58.80	0.02
4.0	4.00	5.00	0.650	0.85	51.5	1939.08	4.75	0.416	81.80	0.04
5.0	5.00	6.00	0.650	0.40	90.0	1020.05	2.43	0.646	17.12	0.01
5.0	5.00	6.00	0.650	0.40	90.0	1020.05	2.43	0.646	17.12	0.01



CONSELHO MUNICIPAL DE MAPUTO

MALANGA – RUA MAJOR GENERAL DOMINGOS FONDO E RUA 2041 – COLECTOR UNITÁRIO

Critérios de Dimensionamento (Rede Unitária)

Material da tubagem (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	0.82	8	37.00

Velocidade mínima (m/s)	Velocidade máxima (m/s)	Inclinação mínima (-)	Inclinação máxima (-)	Alturas de recobrimento	
				mín (m)	máx (m)
0.9	5.0	0.0080	0.1500	1.00	5.00

Parâmetros das Curvas IDF	
a	b
798.68	-0.59

Comprimento total da rede (m)	Diâmetro médio (int.) (m)	Altura média de escavação (m)	Área média de escavação (m^2)
251.37	0.602	1.76	1.06



CONSELHO MUNICIPAL DE MAPUTO

Caudais de Dimensionamento (Rede Unitária)

Colec. (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)	T _{conc.} Jus. (min)
1	22.29	7.00	0.44	4.840	0.000	2.130	332.1	707.32	25.13
2	34.72	25.13	0.00	0.000	2.130	2.130	331.2	705.22	25.26
3	28.67	25.26	0.00	0.000	2.130	2.130	330.1	703.04	25.35
4	60.00	25.35	0.00	0.000	2.130	2.130	329.4	701.48	25.62
5	47.50	25.62	0.53	0.490	2.130	2.389	327.4	782.18	25.80
6	49.27	25.80	0.37	0.450	2.389	2.556	326.0	833.28	25.98
7	8.92	25.98	0.00	0.000	2.556	2.556	324.7	829.86	26.02
8	6.00	26.02	0.00	0.000	2.556	2.556	324.4	829.16	26.05

Verificação das condições hidráulicas do escoamento

Troço (-)	Cx. Visita		Diam. (m)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)	Inclin Terr. (%)
1	1	2	0.600	707.32	2.94	0.477	2.70	1.48	6.15
2	2	3	0.600	705.22	4.38	0.333	6.30	3.95	3.95
3	3	4	0.600	703.04	5.01	0.298	8.38	5.61	5.86
4	4	5	0.600	701.48	3.75	0.377	4.51	2.65	2.65
5	5	6	0.600	782.18	4.45	0.358	6.40	3.85	3.85
6	6	7	0.600	833.28	4.55	0.371	6.62	3.92	3.92
7	7	8	0.600	829.86	4.03	0.410	5.15	2.92	0.56
8	8	9	0.700	829.16	2.66	0.528	2.11	1.00	1.00



CONSELHO MUNICIPAL DE MAPUTO

Elementos do perfil longitudinal

Colec. (troço)	Cx. Visita		Diâm. Nominal (m)	Compr. (m)	Inclin. Colec. (%)	Cota Terreno		Cota Soleira		Prof. Escav.	
	Mont. (-)	Jus. (-)				Cx.Mont. (m)	Cx.Jus. (m)	Cx.Mont. (m)	Cx.Jus. (m)	C.Mont. (m)	C.Jus. (m)
1	1	2	0.600	22.29	1.48	48.32	46.95	45.59	45.26	2.73	1.69
2	2	3	0.600	34.72	3.95	46.95	45.58	45.26	43.89	1.69	1.69
3	3	4	0.600	28.67	5.61	45.58	43.90	43.82	42.21	1.76	1.69
4	4	5	0.600	60.00	2.65	43.90	42.31	42.21	40.62	1.69	1.69
5	5	6	0.600	47.50	3.85	42.31	40.48	40.62	38.79	1.69	1.69
6	6	7	0.600	49.27	3.92	40.48	38.55	38.79	36.86	1.69	1.69
7	7	8	0.600	8.92	2.92	38.55	38.50	36.86	36.60	1.69	1.90
8	8	9	0.700	6.00	1.00	38.50	38.44	36.00	35.94	2.50	2.50

Elementos das caixas de visita

Caixa de Visita (-)	Caudal da Caixa (l/s)	Cota Terreno (m)	Cota Soleira (m)	Profundidade Escavação (m)	Altura da queda máx. (m)
1	0.00	48.32	45.59	2.73	0.00
2	0.00	46.95	45.26	1.69	0.00
3	0.00	45.58	43.82	1.76	0.07
4	0.00	43.90	42.21	1.69	0.00
5	0.00	42.31	40.62	1.69	0.00
6	0.00	40.48	38.79	1.69	0.00
7	0.00	38.55	36.86	1.69	0.00
8	0.00	38.50	36.00	2.50	0.60
9	0.00	38.44	35.94	2.50	0.00



CONSELHO MUNICIPAL DE MAPUTO

MALANGA – RUA 2041 – COLECTOR PLUVIAL (BYPASS)

Critérios de Dimensionamento (Rede Pluvial)

Material da tubagem (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	0.82	8	37.00

Velocidade mínima (m/s)	Velocidade máxima (m/s)	Inclinação mínima (-)	Inclinação máxima (-)	Alturas de recobrimento	
				mín (m)	máx (m)
0.9	5.0	0.0080	0.1500	1.00	5.00

Parâmetros das Curvas IDF	
a	b
798.68	-0.59

Comprimento total da rede (m)	Diâmetro médio (int.) (m)	Altura média de escavação (m)	Área média de escavação (m^2)
4.92	0.600	2.01	1.21

Caudais de Dimensionamento (Rede Pluvial)

Colec. (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)	T _{conc.} Jus. (min)
1	4.92	25.94	0.43	6.610	0.000	2.842	324.98	923.70	25.96



CONSELHO MUNICIPAL DE MAPUTO

Verificação das condições hidráulicas do escoamento

Troço (-)	Cx. Visita		Diam. (m)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)	Inclin Terr. (%)
1	1	2	0.60	923.70	4.150	0.44	5.41	4.74	1.63

Elementos do perfil longitudinal

Colec. (troço)	Cx. Visita		Diâm. Nominal (m)	Compr. (m)	Inclin. Colec. (%)	Cota Terreno		Cota Soleira		Prof. Escav.	
	Mont. (-)	Jus. (-)				Cx.Mont. (m)	Cx.Jus. (m)	Cx.Mont. (m)	Cx.Jus. (m)	C.Mont. (m)	C.Jus. (m)
1	1	2	0.600	4.92	3.00	38.50	38.42	36.52	36.37	1.98	2.05



CONSELHO MUNICIPAL DE MAPUTO

Elementos das caixas de visita

Caixa de Visita (-)	Caudal da Caixa (l/s)	Cota Terreno (m)	Cota Soleira (m)	Profundidade Escavação (m)	Altura da queda máx. (m)
1	0.00	38.50	36.52	1.98	0.00
2	0.00	38.42	36.37	2.05	0.00



CONSELHO MUNICIPAL DE MAPUTO

CHAMANCULO B – RUA DA DLHEMBULA – COLECTOR PLUVIAL (EXISTENTE)

Critérios de Dimensionamento (Rede Pluvial Existente)

Material da tubagem (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	0.8	2	45.87

Velocidade mínima (m/s)	Velocidade máxima (m/s)	Inclinação mínima (-)	Inclinação máxima (-)	Alturas de recobrimento	
				mín (m)	máx (m)
0.9	5.0	0.0030	0.1500	1.00	5.00

Parâmetros das Curvas IDF	
a	b
798.68	-0.59

Tipo de vala (m)	Diâmetro médio (int.) / (bxh) (m)	Comprimento total da rede (m)
Box culvert	(900 x 400)	246.11
Coletor secção circular	800	215.56
Box culvert	(900 x 600)	18.87
		545.58



CONSELHO MUNICIPAL DE MAPUTO

Caudais de Dimensionamento (Rede Pluvial Existente)

Colec. (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)	T _{conc.} Jus. (min)
1	106.72	5.00	0.47	0.40	0.00	0.19	853.10	160.38	1.57
2	95.78	6.57	0.36	0.20	0.19	0.26	725.62	189.81	1.34
3	43.60	20.00	0.36	0.59	0.26	0.48	374.52	178.03	0.63
4	24.99	20.63	0.36	1.80	0.48	1.12	367.74	413.02	0.05
5	81.50	20.68	0.00	0.00	1.12	1.12	367.18	412.39	0.21
6	66.61	20.89	0.52	2.03	1.12	2.18	364.94	796.72	0.21
7	42.46	21.10	0.46	0.12	2.18	2.24	362.78	812.09	0.13
8	27.80	21.23	0.46	0.12	2.24	2.29	361.46	829.13	0.29
9	37.23	21.52	0.71	0.40	2.29	2.57	358.57	923.09	0.37
10	18.87	21.89	0.71	0.40	2.57	2.85	354.93	1013.26	0.00

Verificação das condições hidráulicas do escoamento – colector pluvial existente

Troço (-)	Cx. Visita		Diam. (m)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)	Inclin Terr. (%)
Mont. (-)	Jus. (-)								
1	1	2	0.9 x 0.4	160.38	1.14	0.16	4.59	0.40%	-1%
2	2	3	0.9 x 0.4	189.81	1.19	0.18	4.93	0.40%	0%
3	3	4	0.9 x 0.4	178.03	1.16	0.17	4.72	0.39%	0%
4	4	5	0.80	413.02	1.63	0.40	7.88	0.40%	2%
5	5	6	0.80	412.39	1.47	0.44	6.34	0.31%	1%
6	6	7	0.80	796.72	1.31	0.59	5.30	0.30%	1%
7	7	8	0.80	812.09	1.33	0.58	5.42	0.31%	1%
8	8	9	0.9 x 0.6	829.13	1.61	0.57	7.11	0.29%	1%
9	9	10	0.9 x 0.6	923.09	1.66	0.62	7.53	0.30%	0%
10	10	11	0.60	1013.26	4.54	0.44	63.66	3.60%	3%

Elementos do perfil longitudinal

Colec. (troço)	Cx. Visita		Diâm. Nominal / base (m)	Compr. (m)	Inclin. Colec (%)	Cota Terreno		Cota Soleira		Prof. Escav.	
	Mont. (-)	Jus. (-)				Cx.Mont (m)	Cx.Jus (m)	Cx.Mont (m)	Cx.Jus (m)	C.Mont (m)	C.Jus (m)
1	1	2	0.9 x 0.4	106.72	0.4%	49.99	50.77	49.29	48.86	0.70	1.91
2	2	3	0.9 x 0.4	95.78	0.4%	50.77	51.04	48.86	48.48	1.91	2.56
3	3	4	0.9 x 0.4	43.60	0.4%	51.04	50.90	48.48	48.31	2.56	2.59
4	4	5	0.8	24.99	0.4%	50.90	50.50	48.31	48.21	2.59	2.29
5	5	6	0.8	81.50	0.3%	50.50	49.90	48.21	47.96	2.29	1.94
6	6	7	0.8	66.61	0.3%	49.90	49.20	47.96	47.76	1.94	1.44
7	7	8	0.8	42.46	0.3%	49.20	48.89	47.76	47.63	1.44	1.26
8	8	9	0.9 x 0.6	27.80	0.3%	48.89	48.62	47.63	47.55	1.26	1.07
9	9	10	0.9 x 0.6	37.23	0.3%	48.62	48.80	47.55	47.44	1.07	1.36
10	10	11	0.6	18.87	3.6%	48.80	48.18	47.44	46.76	1.36	1.42



CONSELHO MUNICIPAL DE MAPUTO

Elementos das caixas de visita

Caixa de Visita (-)	Caudal da Caixa (l/s)	Cota Terreno (m)	Cota Soleira (m)	Profundidade Escavação (m)	Altura da queda máx. (m)
1	160.38	49.99	49.29	0.70	0.00
2	53.39	50.77	48.86	1.91	0.00
3	80.06	51.04	48.48	2.56	0.00
4	238.22	50.90	48.31	2.59	0.00
5	0.00	50.50	48.21	2.29	0.00
6	386.84	49.90	47.96	1.94	0.00
7	20.08	49.20	47.76	1.44	0.00
8	20.01	48.89	47.63	1.26	0.00
9	100.57	48.62	47.55	1.07	0.00
10	99.55	48.80	47.44	1.36	0.00



CONSELHO MUNICIPAL DE MAPUTO

CHAMANCULO B – RUA DA DLHEMBULA – COLECTOR PLUVIAL (NOVO)

Critérios de Dimensionamento (Rede Pluvial)

Material da tubagem (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	0.8	2	45.87

Velocidade mínima (m/s)	Velocidade máxima (m/s)	Inclinação mínima (-)	Inclinação máxima (-)	Alturas de recobrimento	
				mín (m)	máx (m)
0.9	5.0	0.0030	0.1500	1.00	5.00

Parâmetros das Curvas IDF	
a	b
798.68	-0.59

Tipo de vala (m)	Diâmetro médio (int.) / (bxh) (m)	Comprimento total da rede (m)
Box culvert	(900 x 400)	246.11
Coletor secção circular	800	299.47
		545.58



CONSELHO MUNICIPAL DE MAPUTO

Caudais de Dimensionamento (Rede Pluvial novo)

Colec. (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)	T _{conc.} Jus. (min)
1	106.72	5.00	0.47	0.40	0.00	0.19	853.10	160.38	1.57
2	95.78	6.57	0.36	0.20	0.19	0.26	725.62	189.81	1.34
3	43.60	20.00	0.36	0.59	0.26	0.48	374.52	178.03	0.63
4	24.99	20.63	0.36	1.80	0.48	1.12	367.74	413.02	0.05
5	81.50	20.68	0.00	0.00	1.12	1.12	367.18	412.39	0.21
6	66.61	20.89	0.52	2.03	1.12	2.18	364.94	796.72	0.21
7	42.46	21.10	0.46	0.12	2.18	2.24	362.78	812.09	0.13
8	27.80	21.23	0.46	0.12	2.24	2.29	361.46	829.13	0.29
9	37.23	21.52	0.71	0.40	2.29	2.57	358.57	923.09	0.37
10	18.87	21.89	0.71	0.40	2.57	2.85	354.93	1013.26	0.00

Nota: Troços novos a azul

Verificação das condições hidráulicas do escoamento – colector pluvial novo

Troço (-)	Cx. Visita		Diam. (m)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m²)	Inclin Troço (%)	Inclin Terr. (%)
1	1	2	0.9 x 0.4	160.38	1.13	0.16	5.66	0.40%	-1%
2	2	3	0.9 x 0.4	189.74	1.20	0.18	6.70	0.40%	0%
3	3	4	0.9 x 0.4	180.46	1.18	0.17	6.37	0.40%	0%
4	4	5	0.80	334.49	1.54	0.36	7.27	0.40%	2%
5	5	6	0.80	333.94	1.39	0.39	5.76	0.30%	1%
6	6	7	0.80	624.25	1.59	0.58	7.05	0.30%	1%
7	7	8	0.80	654.98	1.60	0.61	7.12	0.30%	1%
8	8	9	0.80	686.55	2.58	0.42	19.59	0.97%	1%
9	9	10	0.80	787.60	2.04	0.57	11.70	0.50%	0%
10	10	11	0.80	887.78	4.78	0.32	71.79	4.30%	4%

Nota: Troços novos a azul

Elementos do perfil longitudinal

Colec. (troço)	Cx. Visita		Diâm. Nominal / base (m)	Compr (m)	Inclin. Colec (%)	Cota Terreno		Cota Soleira		Prof. Escav.	
	Mont (-)	Jus (-)				Cx.Mont (m)	Cx.Jus (m)	Cx.Mont (m)	Cx.Jus (m)	C.Mont (m)	C.Jus (m)
1	1	2	0.9 x 0.4	106.72	0.4%	49.99	50.77	49.29	48.86	0.70	1.91
2	2	3	0.9 x 0.4	95.78	0.4%	50.77	51.04	48.86	48.48	1.91	2.56
3	3	4	0.9 x 0.4	43.60	0.4%	51.04	50.90	48.48	48.31	2.56	2.59
4	4	5	0.8	24.99	0.4%	50.90	50.50	48.31	48.21	2.59	2.29
5	5	6	0.8	81.50	0.3%	50.50	49.90	48.21	47.96	2.29	1.94
6	6	7	0.8	66.61	0.3%	49.90	49.20	47.96	47.76	1.94	1.44
7	7	8	0.8	42.46	0.3%	49.20	48.89	47.76	47.63	1.44	1.26
8	8	9	0.8	27.80	1.0%	48.89	48.62	47.01	46.74	1.88	1.88
9	9	10	0.8	37.23	0.5%	48.62	48.80	46.74	46.55	1.88	2.25
10	10	11	0.8	18.87	4.3%	48.80	48.06	45.77	44.96	3.03	3.10

Nota: Troços novos a azul



CONSELHO MUNICIPAL DE MAPUTO

Elementos das caixas de visita

Caixa de Visita (-)	Caudal da Caixa (l/s)	Cota Terreno (m)	Cota Soleira (m)	Profundidade Escavação (m)	Altura da queda máx. (m)
1	160.38	49.99	49.29	0.70	0.00
2	53.38	50.77	48.86	1.91	0.00
3	82.49	51.04	48.48	2.56	0.00
4	157.26	50.90	48.31	2.59	0.00
5	0.00	50.50	48.21	2.29	0.00
6	292.56	49.90	47.96	1.94	0.00
7	33.50	49.20	47.76	1.44	0.62
8	33.41	48.89	47.01	1.88	0.00
9	101.50	48.62	46.74	1.88	0.78
10	101.35	48.80	45.77	3.03	0.00

Nota: Troços novos a azul



CONSELHO MUNICIPAL DE MAPUTO

CHAMANCULO B – RUA DR. ALMEIDA SANTOS

Critérios de Dimensionamento (Rede Pluvial)

Material da vala (-)	Coefficiente Manning ($m^{1/3}/s$)	hmáx/D [T=5 anos] (-)	Nó mais a jusante (-)	Cota de soleira do último nó (m)
Betão	75	1	111	44.48

Velocidade mínima [T=2] (m/s)	Velocidade máxima [T=2] (m/s)	Inclinação mínima (-)	Inclinação máxima (-)
0.9	5.0	0.0030	0.1500

Período de Retorno (anos)	Parâmetros das Curvas IDF	
	a	b
2	614.15	-0.61
5	798.68	-0.59



CONSELHO MUNICIPAL DE MAPUTO

Caudais de Dimensionamento (Rede Pluvial), T=2 anos

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1	1.62	15.00	0.45	4.94	0.000	2.223	329.23	731.88
2	0.26	15.01	1.00	0.00	2.223	0.000	329.04	731.46
3	6.41	15.02	1.00	0.00	2.223	0.000	329.01	731.39
4	1.71	15.07	1.00	0.00	2.223	0.000	328.27	729.75
5	1.87	15.09	1.00	0.00	2.223	0.000	328.08	729.32
6	2.18	15.10	1.00	0.00	2.223	0.000	327.86	728.84
7	3.80	15.12	1.00	0.00	2.223	0.000	327.61	728.28
8	2.16	15.15	1.00	0.00	2.223	0.000	327.23	727.43
9	0.39	15.17	0.45	0.70	2.223	0.314	327.01	829.60
10	0.61	15.17	1.00	0.00	2.537	0.000	326.98	829.51
11	1.30	15.18	1.00	0.00	2.537	0.000	326.92	829.36
12	3.43	15.18	1.00	0.00	2.537	0.000	326.79	829.04
13	1.77	15.21	1.00	0.00	2.537	0.000	326.46	828.20
14	0.65	15.22	1.00	0.00	2.537	0.000	326.29	827.76
15	1.86	15.23	1.00	0.00	2.537	0.000	326.22	827.60
16	2.84	15.24	1.00	0.00	2.537	0.000	326.05	827.15
17	7.17	15.27	1.00	0.00	2.537	0.000	325.74	826.36
18	0.66	15.33	1.00	0.00	2.537	0.000	324.96	824.39
19	8.09	15.33	1.00	0.00	2.537	0.000	324.89	824.20
20	1.26	15.40	1.00	0.00	2.537	0.000	324.01	821.98
21	2.61	15.41	0.45	1.02	2.537	0.460	323.87	970.64
22	4.25	15.43	1.00	0.00	2.997	0.000	323.60	969.84
23	1.14	15.47	1.00	0.00	2.997	0.000	323.17	968.53
24	2.01	15.48	1.00	0.00	2.997	0.000	323.05	968.18
25	10.00	15.49	1.00	0.00	2.997	0.000	322.84	967.56
26	10.00	15.55	1.00	0.00	2.997	0.000	322.06	965.20
27	0.69	15.62	1.00	0.00	2.997	0.000	321.27	962.85
28	2.59	15.62	1.00	0.00	2.997	0.000	321.21	962.66
29	2.49	15.64	1.00	0.00	2.997	0.000	320.98	961.97
30	4.23	15.66	1.00	0.00	2.997	0.000	320.76	961.31
31	0.59	15.69	1.00	0.00	2.997	0.000	320.38	960.18
32	9.41	15.69	1.00	0.00	2.997	0.000	320.32	960.00
33	10.00	15.77	1.00	0.00	2.997	0.000	319.38	957.18
34	1.62	15.85	1.00	0.00	2.997	0.000	318.38	954.19
35	4.92	15.86	1.00	0.00	2.997	0.000	318.22	953.70
36	3.46	15.90	1.00	0.00	2.997	0.000	317.73	952.24
37	10.00	15.94	1.00	0.00	2.997	0.000	317.32	951.00
38	2.01	16.04	1.00	0.00	2.997	0.000	316.12	947.42
39	1.20	16.06	1.00	0.00	2.997	0.000	315.89	946.70
40	6.78	16.07	1.00	0.00	2.997	0.000	315.74	946.27
41	3.00	16.14	1.00	0.00	2.997	0.000	314.94	943.86



CONSELHO MUNICIPAL DE MAPUTO

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
42	7.00	16.17	1.00	0.00	2.997	0.000	314.58	942.80
43	4.57	16.24	1.00	0.00	2.997	0.000	313.76	940.33
44	5.43	16.28	1.00	0.00	2.997	0.000	313.22	938.72
45	0.33	16.34	1.00	0.00	2.997	0.000	312.59	936.82
46	4.65	16.34	1.00	0.00	2.997	0.000	312.55	936.70
47	5.02	16.39	1.00	0.00	2.997	0.000	312.00	935.07
48	4.52	16.44	1.00	0.00	2.997	0.000	311.42	933.32
49	5.48	16.48	1.00	0.00	2.997	0.000	310.90	931.75
50	10.00	16.54	1.00	0.00	2.997	0.000	310.26	929.85
51	10.00	16.64	1.00	0.00	2.997	0.000	309.11	926.41
52	10.00	16.74	1.00	0.00	2.997	0.000	307.97	922.98
53	10.00	16.82	0.36	0.75	2.997	0.270	307.06	1003.15
54	3.89	16.90	1.00	0.00	3.267	0.000	306.17	1000.26
55	6.11	16.94	1.00	0.00	3.267	0.000	305.83	999.13
56	10.00	16.98	1.00	0.00	3.267	0.000	305.29	997.37
57	10.00	17.07	1.00	0.00	3.267	0.000	304.41	994.50
58	10.00	17.15	1.00	0.00	3.267	0.000	303.54	991.65
59	10.00	17.23	1.00	0.00	3.267	0.000	302.67	988.80
60	10.00	17.31	1.00	0.00	3.267	0.000	301.80	985.97
61	7.13	17.39	1.00	0.00	3.267	0.000	300.94	983.16
62	2.49	17.45	1.00	0.00	3.267	0.000	300.32	981.16
63	0.38	17.47	1.00	0.00	3.267	0.000	300.11	980.46
64	10.00	17.47	1.00	0.00	3.267	0.000	300.08	980.35
65	10.00	17.56	1.00	0.00	3.267	0.000	299.22	977.56
66	8.55	17.64	1.00	0.00	3.267	0.000	298.37	974.79
67	1.45	17.71	1.00	0.00	3.267	0.000	297.65	972.42
68	10.00	17.72	1.00	0.00	3.267	0.000	297.53	972.02
69	0.36	17.76	0.36	0.87	3.267	0.313	297.14	1063.80
70	9.64	17.76	1.00	0.00	3.580	0.000	297.12	1063.75
71	4.88	17.80	1.00	0.00	3.580	0.000	296.71	1062.27
72	5.12	17.82	1.00	0.00	3.580	0.000	296.49	1061.49
73	5.85	17.85	1.00	0.00	3.580	0.000	296.26	1060.68
74	4.15	17.88	1.00	0.00	3.580	0.000	295.93	1059.49
75	10.00	17.90	1.00	0.00	3.580	0.000	295.70	1058.66
76	3.32	17.95	1.00	0.00	3.580	0.000	295.21	1056.91
77	6.68	17.96	1.00	0.00	3.580	0.000	295.06	1056.38
78	6.59	17.99	1.00	0.00	3.580	0.000	294.77	1055.33
79	3.41	18.05	1.00	0.00	3.580	0.000	294.25	1053.47
80	9.01	18.07	1.00	0.00	3.580	0.000	293.98	1052.51
81	0.99	18.14	1.00	0.00	3.580	0.000	293.31	1050.10
82	8.76	18.15	1.00	0.00	3.580	0.000	293.23	1049.83
83	1.24	18.21	1.00	0.00	3.580	0.000	292.63	1047.68
84	4.06	18.22	1.00	0.00	3.580	0.000	292.55	1047.37
85	4.11	18.24	1.00	0.00	3.580	0.000	292.36	1046.69



CONSELHO MUNICIPAL DE MAPUTO

Vala (troço)	Compr. (m)	T _{conc.} (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
86	1.83	18.26	1.00	0.00	3.580	0.000	292.16	1045.99
87	4.73	18.27	0.37	1.54	3.580	0.570	292.08	1212.11
88	4.94	18.30	1.00	0.00	4.150	0.000	291.77	1210.86
89	0.33	18.33	1.00	0.00	4.150	0.000	291.46	1209.55
90	7.56	18.33	1.00	0.00	4.150	0.000	291.44	1209.46
91	2.44	18.38	1.00	0.00	4.150	0.000	290.96	1207.47
92	5.44	18.40	1.00	0.00	4.150	0.000	290.80	1206.83
93	4.56	18.44	1.00	0.00	4.150	0.000	290.46	1205.40
94	4.00	18.47	1.00	0.00	4.150	0.000	290.17	1204.20
95	6.00	18.49	1.00	0.00	4.150	0.000	289.92	1203.16
96	5.36	18.53	0.35	3.54	4.150	1.239	289.54	1560.33
97	4.64	18.56	1.00	0.00	5.389	0.000	289.26	1558.81
98	3.92	18.59	1.00	0.00	5.389	0.000	289.01	1557.49
99	6.08	18.61	1.00	0.00	5.389	0.000	288.81	1556.38
100	10.00	18.64	1.00	0.00	5.389	0.000	288.49	1554.66
101	1.49	18.70	1.00	0.00	5.389	0.000	287.93	1551.64
102	8.51	18.71	1.00	0.00	5.389	0.000	287.85	1551.19
103	10.00	18.76	1.00	0.00	5.389	0.000	287.37	1548.63
104	9.54	18.82	1.00	0.00	5.389	0.000	286.81	1545.63
105	0.46	18.88	1.00	0.00	5.389	0.000	286.28	1542.78
106	10.00	18.88	1.00	0.00	5.389	0.000	286.26	1542.64
107	2.16	18.94	1.00	0.00	5.389	0.000	285.70	1539.66
108	2.33	18.96	1.00	0.00	5.389	0.000	285.59	1539.02
109	5.51	18.97	1.00	0.00	5.389	0.000	285.46	1538.32
110	5.04	19.00	1.00	0.00	5.389	0.000	285.15	1536.68



CONSELHO MUNICIPAL DE MAPUTO

Caudais de Dimensionamento (Rede Pluvial), T=5 anos

Vala (troço)	Compr. (m)	Tconc. (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
1	1.62	15.00	0.45	4.94	0.000	2.223	444.30	987.67
2	0.26	15.01	1.00	0.00	2.223	0.000	444.07	987.16
3	6.41	15.02	1.00	0.00	2.223	0.000	444.03	987.08
4	1.71	15.07	1.00	0.00	2.223	0.000	443.12	985.06
5	1.87	15.08	1.00	0.00	2.223	0.000	442.88	984.53
6	2.18	15.10	1.00	0.00	2.223	0.000	442.62	983.94
7	3.80	15.11	1.00	0.00	2.223	0.000	442.31	983.26
8	2.16	15.14	1.00	0.00	2.223	0.000	441.85	982.22
9	0.39	15.16	0.45	0.70	2.223	0.314	441.58	1120.25
10	0.61	15.16	1.00	0.00	2.537	0.000	441.53	1120.13
11	1.30	15.16	1.00	0.00	2.537	0.000	441.46	1119.95
12	3.43	15.17	1.00	0.00	2.537	0.000	441.31	1119.56
13	1.77	15.20	1.00	0.00	2.537	0.000	440.90	1118.52
14	0.65	15.21	1.00	0.00	2.537	0.000	440.69	1117.99
15	1.86	15.21	1.00	0.00	2.537	0.000	440.61	1117.79
16	2.84	15.22	1.00	0.00	2.537	0.000	440.39	1117.24
17	7.17	15.25	1.00	0.00	2.537	0.000	440.01	1116.27
18	0.66	15.30	1.00	0.00	2.537	0.000	439.05	1113.83
19	8.09	15.31	1.00	0.00	2.537	0.000	438.96	1113.61
20	1.26	15.37	1.00	0.00	2.537	0.000	437.89	1110.88
21	2.61	15.38	0.45	1.02	2.537	0.460	437.72	1311.83
22	4.25	15.40	1.00	0.00	2.997	0.000	437.39	1310.84
23	1.14	15.43	1.00	0.00	2.997	0.000	436.84	1309.21
24	2.01	15.44	1.00	0.00	2.997	0.000	436.70	1308.78
25	10.00	15.46	1.00	0.00	2.997	0.000	436.44	1308.01
26	10.00	15.52	1.00	0.00	2.997	0.000	435.48	1305.11
27	0.69	15.57	1.00	0.00	2.997	0.000	434.51	1302.22
28	2.59	15.58	1.00	0.00	2.997	0.000	434.44	1302.00
29	2.49	15.59	1.00	0.00	2.997	0.000	434.15	1301.14
30	4.23	15.61	1.00	0.00	2.997	0.000	433.88	1300.32
31	0.59	15.64	1.00	0.00	2.997	0.000	433.41	1298.93
32	9.41	15.64	1.00	0.00	2.997	0.000	433.34	1298.71
33	10.00	15.72	1.00	0.00	2.997	0.000	432.17	1295.21
34	1.62	15.79	1.00	0.00	2.997	0.000	430.93	1291.50
35	4.92	15.80	1.00	0.00	2.997	0.000	430.73	1290.90
36	3.46	15.84	1.00	0.00	2.997	0.000	430.13	1289.09
37	10.00	15.87	1.00	0.00	2.997	0.000	429.61	1287.54
38	2.01	15.97	1.00	0.00	2.997	0.000	428.12	1283.07
39	1.20	15.99	1.00	0.00	2.997	0.000	427.82	1282.17



CONSELHO MUNICIPAL DE MAPUTO

Vala (troço)	Compr. (m)	Tconc. (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
40	6.78	16.00	1.00	0.00	2.997	0.000	427.64	1281.64
41	3.00	16.06	1.00	0.00	2.997	0.000	426.64	1278.63
42	7.00	16.09	1.00	0.00	2.997	0.000	426.19	1277.30
43	4.57	16.15	1.00	0.00	2.997	0.000	425.16	1274.21
44	5.43	16.20	1.00	0.00	2.997	0.000	424.49	1272.20
45	0.33	16.25	1.00	0.00	2.997	0.000	423.70	1269.82
46	4.65	16.25	1.00	0.00	2.997	0.000	423.65	1269.67
47	5.02	16.30	1.00	0.00	2.997	0.000	422.97	1267.64
48	4.52	16.34	1.00	0.00	2.997	0.000	422.24	1265.45
49	5.48	16.39	1.00	0.00	2.997	0.000	421.59	1263.48
50	10.00	16.44	1.00	0.00	2.997	0.000	420.79	1261.11
51	10.00	16.53	1.00	0.00	2.997	0.000	419.35	1256.79
52	10.00	16.63	1.00	0.00	2.997	0.000	417.92	1252.51
53	10.00	16.70	0.36	0.75	2.997	0.270	416.79	1361.63
54	3.89	16.78	1.00	0.00	3.267	0.000	415.68	1358.02
55	6.11	16.81	1.00	0.00	3.267	0.000	415.25	1356.61
56	10.00	16.85	1.00	0.00	3.267	0.000	414.58	1354.41
57	10.00	16.93	1.00	0.00	3.267	0.000	413.48	1350.82
58	10.00	17.01	1.00	0.00	3.267	0.000	412.38	1347.25
59	10.00	17.08	1.00	0.00	3.267	0.000	411.30	1343.70
60	10.00	17.16	1.00	0.00	3.267	0.000	410.21	1340.16
61	7.13	17.23	1.00	0.00	3.267	0.000	409.13	1336.63
62	2.49	17.29	1.00	0.00	3.267	0.000	408.37	1334.13
63	0.38	17.31	1.00	0.00	3.267	0.000	408.10	1333.25
64	10.00	17.31	1.00	0.00	3.267	0.000	408.06	1333.12
65	10.00	17.39	1.00	0.00	3.267	0.000	406.99	1329.63
66	8.55	17.46	1.00	0.00	3.267	0.000	405.93	1326.15
67	1.45	17.53	1.00	0.00	3.267	0.000	405.02	1323.19
68	10.00	17.54	1.00	0.00	3.267	0.000	404.87	1322.69
69	0.36	17.58	0.36	0.87	3.267	0.313	404.38	1447.77
70	9.64	17.58	1.00	0.00	3.580	0.000	404.37	1447.70
71	4.88	17.62	1.00	0.00	3.580	0.000	403.85	1445.87
72	5.12	17.63	1.00	0.00	3.580	0.000	403.59	1444.91
73	5.85	17.66	1.00	0.00	3.580	0.000	403.31	1443.91
74	4.15	17.69	1.00	0.00	3.580	0.000	402.89	1442.43
75	10.00	17.71	1.00	0.00	3.580	0.000	402.60	1441.39
76	3.32	17.75	1.00	0.00	3.580	0.000	402.00	1439.22
77	6.68	17.77	1.00	0.00	3.580	0.000	401.82	1438.57
78	6.59	17.79	1.00	0.00	3.580	0.000	401.45	1437.27
79	3.41	17.84	1.00	0.00	3.580	0.000	400.80	1434.93
80	9.01	17.87	1.00	0.00	3.580	0.000	400.46	1433.72
81	0.99	17.93	1.00	0.00	3.580	0.000	399.61	1430.69
82	8.76	17.94	1.00	0.00	3.580	0.000	399.52	1430.35
83	1.24	18.00	1.00	0.00	3.580	0.000	398.76	1427.64



CONSELHO MUNICIPAL DE MAPUTO

Vala (troço)	Compr. (m)	Tconc. (min)	C (-)	Área Parc. (ha)	Área red. Mont. (ha)	Área Calc. (ha)	Intens. Precip. l/s/ha	Caudal Cálculo (l/s)
84	4.06	18.00	1.00	0.00	3.580	0.000	398.66	1427.26
85	4.11	18.02	1.00	0.00	3.580	0.000	398.42	1426.41
86	1.83	18.04	1.00	0.00	3.580	0.000	398.18	1425.55
87	4.73	18.05	0.37	1.54	3.580	0.570	398.07	1651.99
88	4.94	18.08	1.00	0.00	4.150	0.000	397.69	1650.41
89	0.33	18.11	1.00	0.00	4.150	0.000	397.30	1648.77
90	7.56	18.11	1.00	0.00	4.150	0.000	397.27	1648.66
91	2.44	18.16	1.00	0.00	4.150	0.000	396.66	1646.15
92	5.44	18.17	1.00	0.00	4.150	0.000	396.47	1645.34
93	4.56	18.20	1.00	0.00	4.150	0.000	396.04	1643.54
94	4.00	18.23	1.00	0.00	4.150	0.000	395.67	1642.03
95	6.00	18.26	1.00	0.00	4.150	0.000	395.35	1640.71
96	5.36	18.29	0.35	3.54	4.150	1.239	394.88	2127.99
97	4.64	18.32	1.00	0.00	5.389	0.000	394.52	2126.07
98	3.92	18.35	1.00	0.00	5.389	0.000	394.21	2124.41
99	6.08	18.37	1.00	0.00	5.389	0.000	393.95	2123.00
100	10.00	18.40	1.00	0.00	5.389	0.000	393.55	2120.83
101	1.49	18.45	1.00	0.00	5.389	0.000	392.84	2117.01
102	8.51	18.46	1.00	0.00	5.389	0.000	392.73	2116.44
103	10.00	18.51	1.00	0.00	5.389	0.000	392.13	2113.19
104	9.54	18.57	1.00	0.00	5.389	0.000	391.43	2109.38
105	0.46	18.62	1.00	0.00	5.389	0.000	390.75	2105.77
106	10.00	18.62	1.00	0.00	5.389	0.000	390.72	2105.59
107	2.16	18.68	1.00	0.00	5.389	0.000	390.02	2101.81
108	2.33	18.69	1.00	0.00	5.389	0.000	389.87	2101.00
109	5.51	18.71	1.00	0.00	5.389	0.000	389.71	2100.12
110	5.04	18.74	1.00	0.00	5.389	0.000	389.32	2098.04



CONSELHO MUNICIPAL DE MAPUTO

Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=2 anos

Troço (-)	Perfil		Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)
	Mont. (-)	Jus. (-)								
1	1	2	0.900	0.990	90.0	731.88	1.92	0.423	10.70	0.50
2	2	3	0.900	0.995	90.0	731.46	1.92	0.423	10.70	0.50
3	3	4	0.900	0.929	90.0	731.39	1.92	0.423	10.70	0.50
4	4	5	0.900	0.929	90.0	729.75	1.92	0.423	10.70	0.50
5	5	6	0.900	0.933	90.0	729.32	1.91	0.423	10.70	0.50
6	6	7	0.900	0.933	90.0	728.84	1.91	0.423	10.70	0.50
7	7	8	0.900	0.949	90.0	728.28	2.17	0.372	13.99	0.70
8	8	9	0.900	0.965	90.0	727.43	2.17	0.372	13.99	0.70
9	9	10	0.900	0.969	90.0	829.60	2.25	0.410	14.73	0.70
10	10	11	0.900	0.961	90.0	829.51	2.25	0.410	14.73	0.70
11	11	12	0.900	0.961	90.0	829.36	2.25	0.410	14.73	0.70
12	12	13	0.900	0.997	90.0	829.04	2.25	0.410	14.73	0.70
13	13	14	0.900	0.997	90.0	828.20	2.25	0.410	14.73	0.70
14	14	15	0.900	0.994	90.0	827.76	2.24	0.410	14.73	0.70
15	15	16	0.900	0.994	90.0	827.60	2.24	0.410	14.73	0.70
16	16	17	0.900	1.016	90.0	827.15	1.98	0.464	11.20	0.50
17	17	18	0.900	1.074	90.0	826.36	1.98	0.464	11.20	0.50
18	18	19	0.900	1.150	90.0	824.39	1.98	0.464	11.20	0.50
19	19	20	0.900	1.150	90.0	824.20	1.97	0.464	11.20	0.50
20	20	21	0.900	1.248	90.0	821.98	1.97	0.464	11.20	0.50
21	21	22	0.900	1.236	90.0	970.64	2.06	0.524	11.87	0.50
22	22	23	0.900	1.236	90.0	969.84	2.06	0.524	11.87	0.50
23	23	24	0.900	1.270	90.0	968.53	2.06	0.524	11.87	0.50
24	24	25	0.900	1.262	90.0	968.18	2.05	0.524	11.87	0.50
25	25	26	0.900	1.145	90.0	967.56	2.67	0.403	20.84	1.00
26	26	27	0.900	1.019	90.0	965.20	2.66	0.403	20.84	1.00
27	27	28	0.900	1.019	90.0	962.85	2.34	0.458	15.59	0.70
28	28	29	0.900	1.058	90.0	962.66	2.33	0.458	15.59	0.70
29	29	30	0.900	1.142	90.0	961.97	2.33	0.458	15.59	0.70
30	30	31	0.900	1.142	90.0	961.31	2.33	0.458	15.59	0.70
31	31	32	0.900	1.197	90.0	960.18	2.05	0.519	11.83	0.50
32	32	33	0.900	1.200	90.0	960.00	2.05	0.519	11.83	0.50
33	33	34	0.900	1.247	90.0	957.18	2.05	0.519	11.83	0.50
34	34	35	0.900	1.297	90.0	954.19	2.04	0.519	11.83	0.50
35	35	36	0.900	1.305	90.0	953.70	2.04	0.519	11.83	0.50
36	36	37	0.900	1.330	90.0	952.24	1.68	0.629	7.72	0.50
37	37	38	0.900	1.338	90.0	951.00	1.68	0.629	7.72	0.50
38	38	39	0.900	1.337	90.0	947.42	1.67	0.629	7.72	0.50
39	39	40	0.900	1.336	90.0	946.70	1.67	0.629	7.72	0.50
40	40	41	0.900	1.333	90.0	946.27	1.67	0.629	7.72	0.50



CONSELHO MUNICIPAL DE MAPUTO

Troço (-)	Perfil		Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m²)	Inclin Troço (%)
	Mont. (-)	Jus. (-)								
41	41	42	0.900	1.333	90.0	943.86	1.67	0.629	7.72	0.50
42	42	43	0.900	1.452	90.0	942.80	1.67	0.629	7.72	0.50
43	43	44	0.900	1.582	90.0	940.33	1.66	0.629	7.72	0.50
44	44	45	0.900	1.602	90.0	938.72	1.66	0.629	7.72	0.50
45	45	46	0.900	1.602	90.0	936.82	1.66	0.629	7.72	0.50
46	46	47	0.900	1.603	90.0	936.70	1.66	0.629	7.72	0.50
47	47	48	0.900	1.607	90.0	935.07	1.65	0.629	7.72	0.50
48	48	49	0.900	1.646	90.0	933.32	1.65	0.629	7.72	0.50
49	49	50	0.900	1.711	90.0	931.75	1.65	0.629	7.72	0.50
50	50	51	0.900	1.634	90.0	929.85	1.64	0.629	7.72	0.50
51	51	52	0.900	1.505	90.0	926.41	1.64	0.629	7.72	0.50
52	52	53	0.900	1.487	90.0	922.98	2.04	0.504	11.66	0.50
53	53	54	0.900	1.487	90.0	1003.15	2.08	0.537	12.01	0.50
54	54	55	0.900	1.585	90.0	1000.26	2.07	0.537	12.01	0.50
55	55	56	0.900	1.580	90.0	999.13	2.07	0.537	12.01	0.50
56	56	57	0.900	1.580	90.0	997.37	2.06	0.537	12.01	0.50
57	57	58	0.900	1.532	90.0	994.50	2.06	0.537	12.01	0.50
58	58	59	0.900	1.532	90.0	991.65	2.05	0.537	12.01	0.50
59	59	60	0.900	1.526	90.0	988.80	2.05	0.537	12.01	0.50
60	60	61	0.900	1.435	90.0	985.97	2.04	0.537	12.01	0.50
61	61	62	0.900	1.404	90.0	983.16	2.03	0.537	12.01	0.50
62	62	63	0.900	1.393	90.0	981.16	2.03	0.537	12.01	0.50
63	63	64	0.900	1.391	90.0	980.46	2.03	0.537	12.01	0.50
64	64	65	0.900	1.353	90.0	980.35	2.03	0.537	12.01	0.50
65	65	66	0.900	1.319	90.0	977.56	2.02	0.537	12.01	0.50
66	66	67	0.900	1.290	90.0	974.79	2.02	0.537	12.01	0.50
67	67	68	0.900	1.283	90.0	972.42	2.01	0.537	12.01	0.50
68	68	69	0.900	1.200	90.0	972.02	4.33	0.249	60.27	2.16
69	69	70	0.900	1.199	90.0	1063.80	3.94	0.300	48.01	2.72
70	70	71	0.900	1.199	90.0	1063.75	3.94	0.300	48.01	2.72
71	71	72	0.900	1.178	90.0	1062.27	3.79	0.311	44.05	2.44
72	72	73	0.900	1.178	90.0	1061.49	3.79	0.311	44.05	2.44
73	73	74	0.900	1.164	90.0	1060.68	2.97	0.397	25.85	1.25
74	74	75	0.900	1.164	90.0	1059.49	2.97	0.397	25.85	1.25
75	75	76	0.900	1.200	90.0	1058.66	3.41	0.345	35.03	1.83
76	76	77	0.900	1.200	90.0	1056.91	3.79	0.310	43.96	2.44
77	77	78	0.900	1.200	90.0	1056.38	3.78	0.310	43.96	2.44
78	78	79	0.900	1.200	90.0	1055.33	2.10	0.558	12.22	0.50
79	79	80	0.900	1.215	90.0	1053.47	2.10	0.558	12.22	0.50
80	80	81	0.900	1.200	90.0	1052.51	2.19	0.533	13.41	0.56
81	81	82	0.900	1.200	90.0	1050.10	2.19	0.533	13.41	0.56
82	82	83	0.900	1.185	90.0	1049.83	2.37	0.492	15.90	0.69
83	83	84	0.900	1.185	90.0	1047.68	2.37	0.492	15.90	0.69



CONSELHO MUNICIPAL DE MAPUTO

Troço (-)	Perfil		Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)
	Mont. (-)	Jus. (-)								
84	84	85	0.900	1.200	90.0	1047.37	3.44	0.338	35.78	1.89
85	85	86	0.900	1.213	90.0	1046.69	3.44	0.338	35.78	1.89
86	86	87	0.900	1.200	90.0	1045.99	3.44	0.338	35.78	1.89
87	87	88	0.900	1.200	90.0	1212.11	2.53	0.531	17.93	0.75
88	88	89	0.900	1.217	90.0	1210.86	2.53	0.531	17.93	0.75
89	89	90	0.900	1.222	90.0	1209.55	2.53	0.531	17.93	0.75
90	90	91	0.900	1.195	90.0	1209.46	2.53	0.531	17.93	0.75
91	91	92	0.900	1.195	90.0	1207.47	2.52	0.531	17.93	0.75
92	92	93	0.900	1.205	90.0	1206.83	2.52	0.531	17.93	0.75
93	93	94	0.900	1.238	90.0	1205.40	2.52	0.531	17.93	0.75
94	94	95	0.900	1.238	90.0	1204.20	2.52	0.531	17.93	0.75
95	95	96	0.900	1.222	90.0	1203.16	2.52	0.531	17.93	0.75
96	96	97	0.900	1.207	90.0	1560.33	3.00	0.578	24.82	1.00
97	97	98	0.900	1.207	90.0	1558.81	3.00	0.578	24.82	1.00
98	98	99	0.900	1.225	90.0	1557.49	2.99	0.578	24.82	1.00
99	99	100	0.900	1.245	90.0	1556.38	2.99	0.578	24.82	1.00
100	100	101	0.900	1.283	90.0	1554.66	2.79	0.619	21.23	0.83
101	101	102	0.900	1.291	90.0	1551.64	2.78	0.619	21.23	0.83
102	102	103	0.900	1.291	90.0	1551.19	2.78	0.619	21.23	0.83
103	103	104	0.900	1.365	90.0	1548.63	2.78	0.619	21.23	0.83
104	104	105	0.900	1.398	90.0	1545.63	2.77	0.619	21.23	0.83
105	105	106	0.900	1.427	90.0	1542.78	2.77	0.619	21.23	0.83
106	106	107	0.900	1.344	90.0	1542.64	2.77	0.619	21.23	0.83
107	107	108	0.900	1.344	90.0	1539.66	2.76	0.619	21.23	0.83
108	108	109	0.900	1.349	90.0	1539.02	2.76	0.619	21.23	0.83
109	109	110	0.900	1.358	90.0	1538.32	2.76	0.619	21.23	0.83
110	110	111	0.900	1.427	90.0	1536.68	2.76	0.619	21.23	0.83



CONSELHO MUNICIPAL DE MAPUTO

Verificação das Condições Hidráulicas do Escoamento (Rede Pluvial), T=5 anos

Troço (-)	Perfil		Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m²)	Inclin Troço (%)
	Mont. (-)	Jus. (-)								
1	1	2	0.900	0.990	90.0	987.67	2.07	0.531	11.94	0.50
2	2	3	0.900	0.995	90.0	987.16	2.07	0.531	11.94	0.50
3	3	4	0.900	0.929	90.0	987.08	2.07	0.531	11.94	0.50
4	4	5	0.900	0.929	90.0	985.06	2.06	0.531	11.94	0.50
5	5	6	0.900	0.933	90.0	984.53	2.06	0.531	11.94	0.50
6	6	7	0.900	0.933	90.0	983.94	2.06	0.531	11.94	0.50
7	7	8	0.900	0.949	90.0	983.26	2.35	0.465	15.71	0.70
8	8	9	0.900	0.965	90.0	982.22	2.35	0.465	15.71	0.70
9	9	10	0.900	0.969	90.0	1120.25	2.42	0.514	16.47	0.70
10	10	11	0.900	0.961	90.0	1120.13	2.42	0.514	16.47	0.70
11	11	12	0.900	0.961	90.0	1119.95	2.42	0.514	16.47	0.70
12	12	13	0.900	0.997	90.0	1119.56	2.42	0.514	16.47	0.70
13	13	14	0.900	0.997	90.0	1118.52	2.42	0.514	16.47	0.70
14	14	15	0.900	0.994	90.0	1117.99	2.42	0.514	16.47	0.70
15	15	16	0.900	0.994	90.0	1117.79	2.42	0.514	16.47	0.70
16	16	17	0.900	1.016	90.0	1117.24	2.13	0.583	12.46	0.50
17	17	18	0.900	1.074	90.0	1116.27	2.13	0.583	12.46	0.50
18	18	19	0.900	1.150	90.0	1113.83	2.12	0.583	12.46	0.50
19	19	20	0.900	1.150	90.0	1113.61	2.12	0.583	12.46	0.50
20	20	21	0.900	1.248	90.0	1110.88	2.12	0.583	12.46	0.50
21	21	22	0.900	1.236	90.0	1311.83	2.20	0.661	13.14	0.50
22	22	23	0.900	1.236	90.0	1310.84	2.20	0.661	13.14	0.50
23	23	24	0.900	1.270	90.0	1309.21	2.20	0.661	13.14	0.50
24	24	25	0.900	1.262	90.0	1308.78	2.20	0.661	13.14	0.50
25	25	26	0.900	1.145	90.0	1308.01	2.88	0.505	23.34	1.00
26	26	27	0.900	1.019	90.0	1305.11	2.87	0.505	23.34	1.00
27	27	28	0.900	1.019	90.0	1302.22	2.51	0.577	17.36	0.70
28	28	29	0.900	1.058	90.0	1302.00	2.51	0.577	17.36	0.70
29	29	30	0.900	1.142	90.0	1301.14	2.51	0.577	17.36	0.70
30	30	31	0.900	1.142	90.0	1300.32	2.51	0.577	17.36	0.70
31	31	32	0.900	1.197	90.0	1298.93	2.20	0.656	13.09	0.50
32	32	33	0.900	1.200	90.0	1298.71	2.20	0.656	13.09	0.50
33	33	34	0.900	1.247	90.0	1295.21	2.19	0.656	13.09	0.50
34	34	35	0.900	1.297	90.0	1291.50	2.19	0.656	13.09	0.50
35	35	36	0.900	1.305	90.0	1290.90	2.19	0.656	13.09	0.50
36	36	37	0.900	1.330	90.0	1289.09	1.79	0.800	8.47	0.50
37	37	38	0.900	1.338	90.0	1287.54	1.79	0.800	8.47	0.50
38	38	39	0.900	1.337	90.0	1283.07	1.78	0.800	8.47	0.50
39	39	40	0.900	1.336	90.0	1282.17	1.78	0.800	8.47	0.50
40	40	41	0.900	1.333	90.0	1281.64	1.78	0.800	8.47	0.50

Concepção de Planos, Estudos de Engenharia e Projecto
Executivo de Infra-estruturas Integradas em Assentamentos
Informais



CONSELHO MUNICIPAL DE MAPUTO

Troço (-)	Perfil		Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m ²)	Inclin Troço (%)
	Mont. (-)	Jus. (-)								
41	41	42	0.900	1.333	90.0	1278.63	1.78	0.800	8.47	0.50
42	42	43	0.900	1.452	90.0	1277.30	1.78	0.800	8.47	0.50
43	43	44	0.900	1.582	90.0	1274.21	1.77	0.800	8.47	0.50
44	44	45	0.900	1.602	90.0	1272.20	1.77	0.800	8.47	0.50
45	45	46	0.900	1.602	90.0	1269.82	1.76	0.800	8.47	0.50
46	46	47	0.900	1.603	90.0	1269.67	1.76	0.800	8.47	0.50
47	47	48	0.900	1.607	90.0	1267.64	1.76	0.800	8.47	0.50
48	48	49	0.900	1.646	90.0	1265.45	1.76	0.800	8.47	0.50
49	49	50	0.900	1.711	90.0	1263.48	1.76	0.800	8.47	0.50
50	50	51	0.900	1.634	90.0	1261.11	1.75	0.800	8.47	0.50
51	51	52	0.900	1.505	90.0	1256.79	1.75	0.800	8.47	0.50
52	52	53	0.900	1.487	90.0	1252.51	2.18	0.638	12.94	0.50
53	53	54	0.900	1.487	90.0	1361.63	2.22	0.681	13.29	0.50
54	54	55	0.900	1.585	90.0	1358.02	2.22	0.681	13.29	0.50
55	55	56	0.900	1.580	90.0	1356.61	2.21	0.681	13.29	0.50
56	56	57	0.900	1.580	90.0	1354.41	2.21	0.681	13.29	0.50
57	57	58	0.900	1.532	90.0	1350.82	2.20	0.681	13.29	0.50
58	58	59	0.900	1.532	90.0	1347.25	2.20	0.681	13.29	0.50
59	59	60	0.900	1.526	90.0	1343.70	2.19	0.681	13.29	0.50
60	60	61	0.900	1.435	90.0	1340.16	2.19	0.681	13.29	0.50
61	61	62	0.900	1.404	90.0	1336.63	2.18	0.681	13.29	0.50
62	62	63	0.900	1.393	90.0	1334.13	2.18	0.681	13.29	0.50
63	63	64	0.900	1.391	90.0	1333.25	2.17	0.681	13.29	0.50
64	64	65	0.900	1.353	90.0	1333.12	2.17	0.681	13.29	0.50
65	65	66	0.900	1.319	90.0	1329.63	2.17	0.681	13.29	0.50
66	66	67	0.900	1.290	90.0	1326.15	2.16	0.681	13.29	0.50
67	67	68	0.900	1.283	90.0	1323.19	2.16	0.681	13.29	0.50
68	68	69	0.900	1.200	90.0	1322.69	4.74	0.310	68.96	2.16
69	69	70	0.900	1.199	90.0	1447.77	4.29	0.375	54.56	2.72
70	70	71	0.900	1.199	90.0	1447.70	4.29	0.375	54.56	2.72
71	71	72	0.900	1.178	90.0	1445.87	4.12	0.390	49.98	2.44
72	72	73	0.900	1.178	90.0	1444.91	4.12	0.390	49.98	2.44
73	73	74	0.900	1.164	90.0	1443.91	3.21	0.500	29.04	1.25
74	74	75	0.900	1.164	90.0	1442.43	3.21	0.500	29.04	1.25
75	75	76	0.900	1.200	90.0	1441.39	3.70	0.432	39.59	1.83
76	76	77	0.900	1.200	90.0	1439.22	4.12	0.388	49.89	2.44
77	77	78	0.900	1.200	90.0	1438.57	4.12	0.388	49.89	2.44
78	78	79	0.900	1.200	90.0	1437.27	2.25	0.711	13.52	0.50
79	79	80	0.900	1.215	90.0	1434.93	2.24	0.711	13.52	0.50
80	80	81	0.900	1.200	90.0	1433.72	2.35	0.678	14.86	0.56
81	81	82	0.900	1.200	90.0	1430.69	2.34	0.678	14.86	0.56
82	82	83	0.900	1.185	90.0	1430.35	2.55	0.624	17.70	0.69
83	83	84	0.900	1.185	90.0	1427.64	2.54	0.624	17.70	0.69



CONSELHO MUNICIPAL DE MAPUTO

Troço (-)	Perfil		Larg. (m)	h (m)	Ângulo (°)	Caudal Cálculo (l/s)	Vel. (m/s)	Altura Escoam. (m)	Poder Transp. (N/m²)	Inclin Troço (%)
	Mont. (-)	Jus. (-)								
84	84	85	0.900	1.200	90.0	1427.26	3.74	0.424	40.48	1.89
85	85	86	0.900	1.213	90.0	1426.41	3.74	0.424	40.48	1.89
86	86	87	0.900	1.200	90.0	1425.55	3.73	0.424	40.48	1.89
87	87	88	0.900	1.200	90.0	1651.99	2.71	0.676	19.88	0.75
88	88	89	0.900	1.217	90.0	1650.41	2.71	0.676	19.88	0.75
89	89	90	0.900	1.222	90.0	1648.77	2.71	0.676	19.88	0.75
90	90	91	0.900	1.195	90.0	1648.66	2.71	0.676	19.88	0.75
91	91	92	0.900	1.195	90.0	1646.15	2.71	0.676	19.88	0.75
92	92	93	0.900	1.205	90.0	1645.34	2.70	0.676	19.88	0.75
93	93	94	0.900	1.238	90.0	1643.54	2.70	0.676	19.88	0.75
94	94	95	0.900	1.238	90.0	1642.03	2.70	0.676	19.88	0.75
95	95	96	0.900	1.222	90.0	1640.71	2.70	0.676	19.88	0.75
96	96	97	0.900	1.207	90.0	2127.99	3.21	0.737	27.42	1.00
97	97	98	0.900	1.207	90.0	2126.07	3.20	0.737	27.42	1.00
98	98	99	0.900	1.225	90.0	2124.41	3.20	0.737	27.42	1.00
99	99	100	0.900	1.245	90.0	2123.00	3.20	0.737	27.42	1.00
100	100	101	0.900	1.283	90.0	2120.83	2.97	0.792	23.38	0.83
101	101	102	0.900	1.291	90.0	2117.01	2.97	0.792	23.38	0.83
102	102	103	0.900	1.291	90.0	2116.44	2.97	0.792	23.38	0.83
103	103	104	0.900	1.365	90.0	2113.19	2.96	0.792	23.38	0.83
104	104	105	0.900	1.398	90.0	2109.38	2.96	0.792	23.38	0.83
105	105	106	0.900	1.427	90.0	2105.77	2.95	0.792	23.38	0.83
106	106	107	0.900	1.344	90.0	2105.59	2.95	0.792	23.38	0.83
107	107	108	0.900	1.344	90.0	2101.81	2.95	0.792	23.38	0.83
108	108	109	0.900	1.349	90.0	2101.00	2.95	0.792	23.38	0.83
109	109	110	0.900	1.358	90.0	2100.12	2.94	0.792	23.38	0.83
110	110	111	0.900	1.427	90.0	2098.04	2.94	0.792	23.38	0.83



CONSELHO MUNICIPAL DE MAPUTO

Elementos do Perfil Longitudinal (Rede Pluvial)

Vala (troço)	Perfil		Larg. (m)	Compr. (m)	Inclin. Troço (%)	Cota Terreno		Cota Soleira		Prof. Escav.	
	Mont. (-)	Jus. (-)				Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)
1	1	2	0.90	1.62	0.50	49.91	49.91	48.92	48.91	0.99	1.00
2	2	3	0.90	0.26	0.50	49.91	49.91	48.91	48.91	1.00	1.00
3	3	4	0.90	6.41	0.50	49.91	49.81	48.91	48.88	1.00	0.93
4	4	5	0.90	1.71	0.50	49.81	49.80	48.88	48.87	0.93	0.93
5	5	6	0.90	1.87	0.50	49.80	49.79	48.87	48.86	0.93	0.93
6	6	7	0.90	2.18	0.50	49.79	49.80	48.86	48.85	0.93	0.95
7	7	8	0.90	3.80	0.70	49.80	49.79	48.85	48.82	0.95	0.96
8	8	9	0.90	2.16	0.70	49.79	49.78	48.82	48.81	0.96	0.97
9	9	10	0.90	0.39	0.70	49.78	49.77	48.81	48.81	0.97	0.97
10	10	11	0.90	0.61	0.70	49.77	49.76	48.81	48.80	0.97	0.96
11	11	12	0.90	1.30	0.70	49.76	49.80	48.80	48.79	0.96	1.00
12	12	13	0.90	3.43	0.70	49.80	49.77	48.79	48.77	1.00	1.00
13	13	14	0.90	1.77	0.70	49.77	49.75	48.77	48.76	1.00	1.00
14	14	15	0.90	0.65	0.70	49.75	49.75	48.76	48.75	1.00	0.99
15	15	16	0.90	1.86	0.70	49.75	49.75	48.75	48.74	0.99	1.02
16	16	17	0.90	2.84	0.50	49.75	49.80	48.74	48.72	1.02	1.07
17	17	18	0.90	7.17	0.50	49.80	49.84	48.72	48.69	1.07	1.15
18	18	19	0.90	0.66	0.50	49.84	49.84	48.69	48.68	1.15	1.15
19	19	20	0.90	8.09	0.50	49.84	49.89	48.68	48.64	1.15	1.25
20	20	21	0.90	1.26	0.50	49.89	49.89	48.64	48.64	1.25	1.25
21	21	22	0.90	2.61	0.50	49.89	49.86	48.64	48.63	1.25	1.24
22	22	23	0.90	4.25	0.50	49.86	49.87	48.63	48.60	1.24	1.27
23	23	24	0.90	1.14	0.50	49.87	49.88	48.60	48.60	1.27	1.28
24	24	25	0.90	2.01	0.50	49.88	49.85	48.60	48.59	1.28	1.26
25	25	26	0.90	10.00	1.00	49.85	49.63	48.59	48.49	1.26	1.14
26	26	27	0.90	10.00	1.00	49.63	49.41	48.49	48.39	1.14	1.02
27	27	28	0.90	0.69	0.70	49.41	49.44	48.39	48.38	1.02	1.06
28	28	29	0.90	2.59	0.70	49.44	49.51	48.38	48.37	1.06	1.15
29	29	30	0.90	2.49	0.70	49.51	49.49	48.37	48.35	1.15	1.14
30	30	31	0.90	4.23	0.70	49.49	49.52	48.35	48.32	1.14	1.20
31	31	32	0.90	0.59	0.50	49.52	49.52	48.32	48.32	1.20	1.20
32	32	33	0.90	9.41	0.50	49.52	49.52	48.32	48.27	1.20	1.25
33	33	34	0.90	10.00	0.50	49.52	49.52	48.27	48.22	1.25	1.30
34	34	35	0.90	1.62	0.50	49.52	49.52	48.22	48.21	1.30	1.31
35	35	36	0.90	4.92	0.50	49.52	49.52	48.21	48.19	1.31	1.33
36	36	37	0.90	3.46	0.50	49.52	49.51	48.19	48.17	1.33	1.34
37	37	38	0.90	10.00	0.50	49.51	49.46	48.17	48.12	1.34	1.34
38	38	39	0.90	2.01	0.50	49.46	49.44	48.12	48.11	1.34	1.34
39	39	40	0.90	1.20	0.50	49.44	49.44	48.11	48.10	1.34	1.34
40	40	41	0.90	6.78	0.50	49.44	49.40	48.10	48.07	1.34	1.33



CONSELHO MUNICIPAL DE MAPUTO

Vala (troço)	Perfil		Larg. (m)	Compr. (m)	Inclin. Troço (%)	Cota Terreno		Cota Soleira		Prof. Escav.	
	Mont. (-)	Jus. (-)				Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)
41	41	42	0.90	3.00	0.50	49.40	49.51	48.07	48.05	1.33	1.45
42	42	43	0.90	7.00	0.50	49.51	49.60	48.05	48.02	1.45	1.58
43	43	44	0.90	4.57	0.50	49.60	49.65	48.02	48.00	1.58	1.65
44	44	45	0.90	5.43	0.50	49.65	49.57	48.00	47.97	1.65	1.60
45	45	46	0.90	0.33	0.50	49.57	49.57	47.97	47.97	1.60	1.60
46	46	47	0.90	4.65	0.50	49.57	49.55	47.97	47.94	1.60	1.61
47	47	48	0.90	5.02	0.50	49.55	49.56	47.94	47.92	1.61	1.65
48	48	49	0.90	4.52	0.50	49.56	49.61	47.92	47.90	1.65	1.71
49	49	50	0.90	5.48	0.50	49.61	49.66	47.90	47.87	1.71	1.80
50	50	51	0.90	10.00	0.50	49.66	49.45	47.87	47.82	1.80	1.63
51	51	52	0.90	10.00	0.50	49.45	49.27	47.82	47.77	1.63	1.50
52	52	53	0.90	10.00	0.50	49.27	49.21	47.77	47.72	1.50	1.49
53	53	54	0.90	10.00	0.50	49.21	49.25	47.72	47.67	1.49	1.58
54	54	55	0.90	3.89	0.50	49.25	49.26	47.67	47.65	1.58	1.61
55	55	56	0.90	6.11	0.50	49.26	49.20	47.65	47.62	1.61	1.58
56	56	57	0.90	10.00	0.50	49.20	49.18	47.62	47.57	1.58	1.61
57	57	58	0.90	10.00	0.50	49.18	49.05	47.57	47.52	1.61	1.53
58	58	59	0.90	10.00	0.50	49.05	49.06	47.52	47.47	1.53	1.59
59	59	60	0.90	10.00	0.50	49.06	48.94	47.47	47.42	1.59	1.53
60	60	61	0.90	10.00	0.50	48.94	48.80	47.42	47.37	1.53	1.43
61	61	62	0.90	7.13	0.50	48.80	48.74	47.37	47.33	1.43	1.40
62	62	63	0.90	2.49	0.50	48.74	48.71	47.33	47.32	1.40	1.39
63	63	64	0.90	0.38	0.50	48.71	48.71	47.32	47.32	1.39	1.39
64	64	65	0.90	10.00	0.50	48.71	48.62	47.32	47.27	1.39	1.35
65	65	66	0.90	10.00	0.50	48.62	48.54	47.27	47.22	1.35	1.32
66	66	67	0.90	8.55	0.50	48.54	48.47	47.22	47.18	1.32	1.29
67	67	68	0.90	1.45	0.50	48.47	48.45	47.18	47.17	1.29	1.28
68	68	69	0.90	10.00	2.16	48.45	48.15	47.17	46.95	1.28	1.20
69	69	70	0.90	0.36	2.72	48.15	48.14	46.95	46.94	1.20	1.20
70	70	71	0.90	9.64	2.72	48.14	47.88	46.94	46.68	1.20	1.20
71	71	72	0.90	4.88	2.44	47.88	47.74	46.68	46.56	1.20	1.18
72	72	73	0.90	5.12	2.44	47.74	47.64	46.56	46.44	1.18	1.20
73	73	74	0.90	5.85	1.25	47.64	47.53	46.44	46.36	1.20	1.16
74	74	75	0.90	4.15	1.25	47.53	47.51	46.36	46.31	1.16	1.20
75	75	76	0.90	10.00	1.83	47.51	47.33	46.31	46.13	1.20	1.20
76	76	77	0.90	3.32	2.44	47.33	47.33	46.13	46.05	1.20	1.28
77	77	78	0.90	6.68	2.44	47.33	47.08	46.05	45.88	1.28	1.20
78	78	79	0.90	6.59	0.50	47.08	47.08	45.88	45.85	1.20	1.23
79	79	80	0.90	3.41	0.50	47.08	47.05	45.85	45.83	1.23	1.22
80	80	81	0.90	9.01	0.56	47.05	46.98	45.83	45.78	1.22	1.20
81	81	82	0.90	0.99	0.56	46.98	46.98	45.78	45.78	1.20	1.20
82	82	83	0.90	8.76	0.69	46.98	46.90	45.78	45.72	1.20	1.19
83	83	84	0.90	1.24	0.69	46.90	46.91	45.72	45.71	1.19	1.20



CONSELHO MUNICIPAL DE MAPUTO

Vala (troço)	Perfil		Larg. (m)	Compr. (m)	Inclin. Troço (%)	Cota Terreno		Cota Soleira		Prof. Escav.	
	Mont. (-)	Jus. (-)				Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)	Mont. (m)	Jus. (m)
84	84	85	0.90	4.06	1.89	46.91	46.90	45.71	45.63	1.20	1.26
85	85	86	0.90	4.11	1.89	46.90	46.77	45.63	45.55	1.26	1.21
86	86	87	0.90	1.83	1.89	46.77	46.72	45.55	45.52	1.21	1.20
87	87	88	0.90	4.73	0.75	46.72	46.70	45.52	45.48	1.20	1.22
88	88	89	0.90	4.94	0.75	46.70	46.67	45.48	45.45	1.22	1.22
89	89	90	0.90	0.33	0.75	46.67	46.67	45.45	45.45	1.22	1.23
90	90	91	0.90	7.56	0.75	46.67	46.58	45.45	45.39	1.23	1.19
91	91	92	0.90	2.44	0.75	46.58	46.58	45.39	45.37	1.19	1.21
92	92	93	0.90	5.44	0.75	46.58	46.60	45.37	45.33	1.21	1.27
93	93	94	0.90	4.56	0.75	46.60	46.53	45.33	45.30	1.27	1.24
94	94	95	0.90	4.00	0.75	46.53	46.51	45.30	45.27	1.24	1.25
95	95	96	0.90	6.00	0.75	46.51	46.44	45.27	45.22	1.25	1.22
96	96	97	0.90	5.36	1.00	46.44	46.37	45.22	45.17	1.22	1.21
97	97	98	0.90	4.64	1.00	46.37	46.35	45.17	45.12	1.21	1.23
98	98	99	0.90	3.92	1.00	46.35	46.33	45.12	45.08	1.23	1.25
99	99	100	0.90	6.08	1.00	46.33	46.30	45.08	45.02	1.25	1.28
100	100	101	0.90	10.00	0.83	46.30	46.37	45.02	44.94	1.28	1.43
101	101	102	0.90	1.49	0.83	46.37	46.22	44.94	44.92	1.43	1.29
102	102	103	0.90	8.51	0.83	46.22	46.22	44.92	44.85	1.29	1.37
103	103	104	0.90	10.00	0.83	46.22	46.17	44.85	44.77	1.37	1.40
104	104	105	0.90	9.54	0.83	46.17	46.12	44.77	44.69	1.40	1.43
105	105	106	0.90	0.46	0.83	46.12	46.12	44.69	44.69	1.43	1.43
106	106	107	0.90	10.00	0.83	46.12	45.95	44.69	44.60	1.43	1.34
107	107	108	0.90	2.16	0.83	45.95	45.94	44.60	44.59	1.34	1.35
108	108	109	0.90	2.33	0.83	45.94	45.93	44.59	44.57	1.35	1.36
109	109	110	0.90	5.51	0.83	45.93	45.95	44.57	44.52	1.36	1.43
110	110	111	0.90	5.04	0.83	45.95	45.91	44.52	44.48	1.43	1.43