

**GOVERNO DE GOIÁS**  
**SECRETARIA DE ESTADO DA INFRAESTRUTURA – SEINFRA**  
**PREFEITURA MUNICIPAL DE APARECIDA DE GOIÂNIA**

**Projeto Executivo de Engenharia para Geometria, Terraplenagem,  
Pavimentação, Drenagem, Obras de Artes Especiais, Paisagismo e  
Sinalização**

**Ligação Viária Avenida Copacabana / Vale das Pombas**

**VOLUME 03A – NOTAS DE SERVIÇO E CÁLCULOS DE VOLUMES DE TERRAPLENAGEM**

**Trecho:** Ligação Viária Avenida Copacabana / Vale das Pombas  
**Processo:** 2021.364.426

MAIO/2026

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**COORDENAÇÃO:**  
**ELABORAÇÃO:**

Secretaria de Infraestrutura  
Basitec Projetos e Construções Ltda

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## 1 APRESENTAÇÃO

O presente relatório denominado de Volume 3A – Notas de Serviço e Cálculos de Volumes de Terraplenagem é parte integrante do Projeto Executivo de Engenharia para a Ligação Viária correspondente a interligação da Avenida Copacabana, no Loteamento Real Grandeza, com a Avenida Vale das Pombas (estrada velha para Bela Vista), no setor Vale das Pombas.

O trabalho é composto pelos seguintes volumes:

- Volume 01 – Relatório de Projeto;
- Volume 02 – Projeto de Execução;
- Volume 3A – Notas de Serviço e Cálculos de Volumes de Terraplenagem;
- Volume 3B – Estudos Geotécnicos;
- Volume 3E – Memorial de Cálculos Estruturais;
- Volume 04 – Orçamento e Planejamento.

### 1.1 MAPA DE LOCALIZAÇÃO



Figura 1: Mapa de localização regional





Figura 2: Mapa de Localização local

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## 2 PLANILHA DE CÁLCULO DE VOLUMES

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A seguir é apresentada a planilha de cálculo de volumes necessários para a implantação da ligação viária.  
Os volumes de aterro são relativos à seção compactada.

Cálculo de Volumes de Terraplenagem						
Eixo:	Eixo 01 LE					
Via:	Ligação Av. Copacabana / Av. Vale das Pombas					
Estaca	Corte		Aterro		Volume acumulado (m³)	
	Área (m²)	Volume (m³)	Área (m²)	Volume (m³)	Corte	Aterro
134+0,000	0,48	0,00	2,37	0,00	0,00	0,00
135+0,000	0,49	9,05	2,27	43,01	9,05	43,01
136+0,000	1,27	17,69	1,71	39,87	26,75	82,88
137+0,000	1,97	32,40	0,79	25,02	59,15	107,90
138+0,000	1,53	34,92	0,98	17,64	94,07	125,54
139+0,000	1,19	27,16	1,02	19,92	121,23	145,46
140+0,000	1,31	24,96	1,09	21,03	146,19	166,50
141+0,000	1,26	25,68	1,12	22,03	171,87	188,53
142+0,000	1,75	30,10	0,72	18,37	201,97	206,90
143+0,000	1,19	29,36	1,18	18,97	231,34	225,87
144+0,000	2,92	41,02	0,70	18,79	272,36	244,66
145+0,000	1,22	41,34	1,08	17,77	313,70	262,43
146+0,000	1,56	27,76	0,80	18,74	341,46	281,18
147+0,000	2,29	38,51	0,54	13,37	379,96	294,55
148+0,000	2,63	49,19	0,39	9,32	429,15	303,87
149+0,000	2,69	53,19	0,33	7,20	482,34	311,07
150+0,000	3,47	61,60	0,07	4,03	543,94	315,10
151+0,000	5,14	86,04	0,00	0,74	629,98	315,83
152+0,000	5,73	108,71	0,02	0,18	738,69	316,01
153+0,000	5,77	115,05	0,05	0,68	853,74	316,69
154+0,000	5,98	117,48	0,03	0,86	971,22	317,55
155+0,000	5,10	110,81	0,11	1,47	1.082,04	319,02
156+0,000	2,93	80,33	0,87	9,77	1.162,37	328,79
157+0,000	4,73	76,57	0,76	16,27	1.238,93	345,06
158+0,000	1,98	67,09	1,14	18,97	1.306,02	364,03
159+0,000	1,29	32,74	1,55	26,90	1.338,77	390,93
160+0,000	1,99	32,86	1,30	28,56	1.371,62	419,49
161+0,000	3,63	56,19	0,77	20,69	1.427,82	440,18
162+0,000	1,83	54,59	1,45	22,20	1.482,41	462,38
163+0,000	3,68	55,15	0,60	20,50	1.537,56	482,88
164+0,000	2,17	58,52	1,16	17,59	1.596,08	500,46
165+0,000	1,57	37,36	1,54	26,98	1.633,44	527,45
166+0,000	3,15	47,13	0,65	21,91	1.680,58	549,35
167+0,000	1,70	48,60	1,57	21,99	1.729,18	571,34
168+0,000	1,62	33,27	1,81	33,46	1.762,45	604,80
169+0,000	1,68	32,88	1,77	36,18	1.795,33	640,99
170+0,000	3,39	50,49	0,60	24,35	1.845,81	665,34
171+0,000	4,56	78,77	1,54	22,69	1.924,58	688,03
172+0,000	2,54	70,12	3,61	55,33	1.994,70	743,36
173+0,000	3,89	63,29	3,10	72,15	2.057,99	815,51
174+0,000	2,42	62,65	1,78	49,99	2.120,64	865,49
175+0,000	2,03	44,49	2,01	37,86	2.165,13	903,36
176+0,000	1,56	35,89	2,25	42,54	2.201,02	945,90
177+0,000	0,64	21,92	4,08	63,28	2.222,94	1.009,18
178+0,000	0,55	11,89	4,14	82,20	2.234,83	1.091,38
179+0,000	2,41	29,58	3,24	73,84	2.264,40	1.165,23
180+0,000	1,39	37,99	3,13	63,77	2.302,39	1.229,00
181+0,000	1,53	29,27	2,91	60,39	2.331,66	1.289,39
182+0,000	0,95	24,86	3,07	59,77	2.356,53	1.349,16
183+0,000	1,78	27,34	3,61	66,81	2.383,87	1.415,97
184+0,000	0,47	22,53	4,73	83,35	2.406,39	1.499,32
185+0,000	1,03	15,04	3,84	85,65	2.421,43	1.584,97
186+0,000	1,65	26,78	2,53	63,70	2.448,22	1.648,67
187+0,000	3,71	53,55	1,91	44,38	2.501,77	1.693,05
188+0,000	5,63	93,43	1,55	34,59	2.595,20	1.727,64
189+0,000	2,32	79,51	1,65	31,98	2.674,71	1.759,61
190+0,000	4,40	67,18	1,08	27,29	2.741,90	1.786,91
191+0,000	3,60	80,03	1,09	21,78	2.821,93	1.808,69
192+0,000	3,10	66,99	0,99	20,87	2.888,92	1.829,55
193+0,000	3,74	68,37	0,22	12,15	2.957,29	1.841,70
194+0,000	4,23	79,70	0,74	9,66	3.036,99	1.851,37
195+0,000	7,24	114,69	0,20	9,42	3.151,68	1.860,79
196+0,000	4,20	114,36	0,92	11,14	3.266,04	1.871,93
197+0,000	4,14	83,32	0,74	16,57	3.349,36	1.888,50
198+0,000	6,09	102,27	0,31	10,48	3.451,64	1.898,98
199+0,000	4,84	109,34	0,63	9,37	3.560,98	1.908,35
200+0,000	2,52	73,67	1,61	22,28	3.634,65	1.930,62
201+0,000	0,97	35,00	2,02	35,86	3.669,65	1.966,48
202+0,000	0,28	12,63	3,41	53,69	3.682,28	2.020,18
203+0,000	0,00	2,84	7,58	109,94	3.685,12	2.130,11
204+0,000	0,26	2,36	5,67	144,47	3.687,48	2.274,58
205+0,000	0,43	6,97	2,39	78,88	3.694,45	2.353,46
206+0,000	3,22	39,01	0,76	24,51	3.733,46	2.377,97
207+0,000	1,48	49,07	1,05	15,80	3.782,53	2.393,77
208+0,000	4,94	63,24	0,30	13,69	3.845,76	2.407,46
209+0,000	4,86	97,98	1,23	15,32	3.943,75	2.422,78
210+0,000	1,64	65,03	1,65	28,83	4.008,78	2.451,61
211+0,000	0,35	19,93	2,42	40,64	4.028,71	2.492,25

Cálculo de Volumes de Terraplenagem						
Eixo:		Eixo 01 LE				
Via:		Ligação Av. Copacabana / Av. Vale das Pombas				
Estaca	Corte		Aterro		Volume acumulado (m³)	
	Área (m²)	Volume (m³)	Área (m²)	Volume (m³)	Corte	Aterro
212+0,000	0,72	10,78	2,14	45,60	4.039,49	2.537,85
213+0,000	0,11	8,38	3,67	58,16	4.047,87	2.596,01
214+0,000	0,00	1,13	4,19	78,59	4.049,01	2.674,61
215+0,000	0,06	0,63	5,28	94,66	4.049,64	2.769,27
216+0,000	0,00	0,64	6,65	119,32	4.050,27	2.888,59
217+0,000	0,00	0,00	10,41	170,69	4.050,28	3.059,28
218+0,000	0,00	0,00	11,79	221,44	4.050,28	3.280,72
219+0,000	0,00	0,00	10,97	228,24	4.050,28	3.508,96
220+0,000	0,44	4,36	6,36	174,90	4.054,64	3.683,86
221+0,000	0,00	4,36	4,73	111,73	4.059,00	3.795,59
222+0,000	0,12	1,20	3,64	83,57	4.060,20	3.879,16
223+0,000	0,18	3,02	4,05	76,64	4.063,23	3.955,80
224+0,000	0,26	4,45	2,25	62,98	4.067,67	4.018,78
225+0,000	4,38	46,40	0,00	22,52	4.114,07	4.041,30
226+0,000	5,60	99,54	0,01	0,14	4.213,61	4.041,44
227+0,000	7,73	133,05	0,00	0,14	4.346,66	4.041,57
228+0,000	1,59	93,07	0,45	4,54	4.439,73	4.046,11
229+0,000	0,46	20,44	2,66	31,29	4.460,17	4.077,40
230+0,000	0,00	4,61	6,49	91,80	4.464,77	4.169,20
231+0,000	0,91	9,02	7,94	144,97	4.473,80	4.314,17
232+0,000	1,46	23,66	7,94	158,82	4.497,46	4.472,99
233+0,000	1,65	31,09	8,50	164,40	4.528,55	4.637,39
234+0,000	1,89	35,38	8,48	169,75	4.563,93	4.807,14
235+0,000	1,90	37,87	8,67	171,49	4.601,81	4.978,63
236+0,000	1,08	29,80	10,31	189,80	4.631,61	5.168,43
237+0,000	0,39	14,78	11,14	212,10	4.646,39	5.380,53
238+0,000	0,00	3,92	11,78	227,46	4.650,31	5.608,00
239+0,000	0,00	0,00	10,83	225,61	4.650,31	5.833,60
240+0,000	0,00	0,00	7,08	179,13	4.650,31	6.012,73
241+0,000	0,24	2,47	3,79	108,39	4.652,78	6.121,13
242+0,000	0,38	6,37	4,32	80,62	4.659,15	6.201,75
243+0,000	0,17	5,57	2,05	63,36	4.664,72	6.265,11
244+0,000	3,27	34,40	0,13	21,75	4.699,13	6.286,86
245+0,000	4,35	76,22	0,15	2,74	4.775,35	6.289,60
246+0,000	3,96	83,10	1,86	20,12	4.858,44	6.309,72
247+0,000	2,06	60,19	6,16	80,23	4.918,64	6.389,95
248+0,000	1,32	33,80	9,37	155,30	4.952,44	6.545,25
249+0,000	0,44	17,58	11,90	212,67	4.970,02	6.757,92
250+0,000	0,00	4,36	15,35	272,49	4.974,38	7.030,41
251+0,000	0,00	0,00	19,88	352,38	4.974,38	7.382,79
252+0,000	0,00	0,00	32,21	520,75	4.974,38	7.903,54
253+0,000	0,00	0,00	34,26	665,12	4.974,38	8.568,67
254+0,000	0,00	0,00	30,87	652,66	4.974,38	9.221,33
255+0,000	0,00	0,00	32,73	635,91	4.974,38	9.857,24
256+0,000	0,00	0,00	28,68	613,47	4.974,38	10.470,71
257+0,000	0,00	0,00	18,02	466,90	4.974,38	10.937,62
258+0,000	0,00	0,00	25,75	437,68	4.974,38	11.375,29
259+0,000	0,00	0,00	25,25	511,49	4.974,38	11.886,78
260+0,000	0,00	0,00	22,61	478,34	4.974,38	12.365,12
261+0,000	0,00	0,00	19,52	419,40	4.974,38	12.784,52
262+0,000	0,00	0,00	15,70	349,96	4.974,38	13.134,48
263+0,000	0,00	0,00	12,66	283,24	4.974,38	13.417,72
264+0,000	0,00	0,00	8,00	206,61	4.974,38	13.624,33
265+0,000	0,32	3,18	5,56	135,61	4.977,56	13.759,94
266+0,000	0,13	4,43	6,26	118,46	4.981,99	13.878,40
267+0,000	0,00	1,27	5,38	116,50	4.983,26	13.994,90
268+0,000	1,45	14,49	0,89	62,77	4.997,74	14.057,67
269+0,000	1,18	26,28	2,12	30,10	5.024,02	14.087,77
270+0,000	1,66	28,39	1,85	39,67	5.052,41	14.127,44
271+0,000	2,11	37,75	1,31	31,54	5.090,16	14.158,98
272+0,000	2,17	42,85	1,65	29,62	5.133,01	14.188,60
273+0,000	2,04	42,17	1,84	34,96	5.175,18	14.223,56
274+0,000	1,88	39,23	2,04	38,86	5.214,41	14.262,41
275+0,000	1,93	38,06	2,49	45,39	5.252,47	14.307,80
276+0,000	2,63	45,62	3,32	58,11	5.298,09	14.365,91
277+0,000	3,14	57,98	4,04	73,35	5.356,07	14.439,26
278+0,000	3,46	66,27	5,17	91,84	5.422,34	14.531,11
279+0,000	3,63	71,17	4,47	96,18	5.493,52	14.627,29
280+0,000	3,21	68,40	4,69	91,61	5.561,92	14.718,90
281+0,000	4,35	75,61	4,27	89,56	5.637,53	14.808,47
282+0,000	5,50	98,58	3,41	76,80	5.736,10	14.885,27
283+0,000	7,62	132,07	1,13	45,17	5.868,18	14.930,44
284+0,000	9,45	177,41	0,00	10,62	6.045,59	14.941,06
285+0,000	9,66	193,23	0,00	0,00	6.238,82	14.941,06
286+0,000	0,56	101,28	0,93	9,54	6.340,10	14.950,60
287+0,000	0,32	8,66	2,22	31,87	6.348,76	14.982,47
288+0,000	0,08	4,01	1,98	42,04	6.352,77	15.024,51
289+0,000	0,32	3,92	1,95	39,35	6.356,69	15.063,86



Cálculo de Volumes de Terraplenagem						
Eixo: Eixo 01 LE						
Via: Ligação Av. Copacabana / Av. Vale das Pombas						
Estaca	Corte		Aterro		Volume acumulado (m³)	
	Área (m²)	Volume (m³)	Área (m²)	Volume (m³)	Corte	Aterro
290+0,000	0,27	5,86	6,26	82,10	6.362,54	15.145,96
291+0,000	0,21	4,77	6,61	128,63	6.367,32	15.274,59
292+0,000	0,16	3,68	5,12	117,28	6.371,00	15.391,87
293+0,000	0,06	2,16	3,98	91,03	6.373,16	15.482,91
294+0,000	0,03	0,82	2,68	66,58	6.373,99	15.549,49
295+0,000	1,23	12,55	3,29	59,64	6.386,53	15.609,13
296+0,000	0,44	16,64	2,45	57,32	6.403,17	15.666,45
297+0,000	0,52	9,56	1,07	35,19	6.412,73	15.701,64
298+0,000	0,17	6,85	4,56	56,38	6.419,59	15.758,02
299+0,000	0,25	4,20	7,04	116,04	6.423,78	15.874,05
300+0,000	0,03	2,88	6,57	136,09	6.426,67	16.010,15
301+0,000	0,09	1,22	4,72	112,92	6.427,88	16.123,07
302+0,000	0,30	3,90	2,49	72,09	6.431,79	16.195,16
303+0,000	1,10	14,04	1,29	37,78	6.445,83	16.232,94
304+0,000	0,94	20,37	1,90	31,89	6.466,20	16.264,83
305+0,000	1,10	20,32	3,40	53,01	6.486,51	16.317,84
306+0,000	1,64	27,42	3,00	64,05	6.513,93	16.381,88
307+0,000	2,50	41,46	4,43	74,34	6.555,39	16.456,22
308+0,000	0,03	25,87	7,34	115,64	6.581,26	16.571,86
309+0,000	0,00	0,28	20,02	268,70	6.581,53	16.840,56
310+0,000	0,00	0,00	27,15	469,13	6.581,53	17.309,69
311+0,000	0,00	0,00	55,75	832,15	6.581,53	18.141,84
312+0,000	0,00	0,00	23,43	791,76	6.581,53	18.933,61
313+0,000	0,00	0,00	7,75	311,82	6.581,53	19.245,42
314+0,000	3,94	39,38	1,41	91,63	6.620,91	19.337,05
315+0,000	6,31	102,70	0,59	19,70	6.723,61	19.356,75
316+0,000	3,23	95,40	1,38	19,72	6.819,01	19.376,47
317+0,000	3,40	66,37	1,20	25,76	6.885,39	19.402,23
318+0,000	4,51	79,15	0,97	21,63	6.964,54	19.423,86
319+0,000	5,63	101,42	0,89	18,52	7.065,96	19.442,38
320+0,000	7,18	128,11	0,63	15,20	7.194,07	19.457,58
321+0,000	9,52	167,03	0,19	8,20	7.361,10	19.465,78
322+0,000	11,83	213,55	0,26	4,44	7.574,65	19.470,23
323+0,000	2,78	146,11	1,15	14,08	7.720,77	19.484,31
324+0,000	3,54	63,22	0,95	21,01	7.783,99	19.505,32
325+0,000	4,24	77,86	1,06	20,12	7.861,85	19.525,44
326+0,000	3,65	78,90	1,67	27,28	7.940,75	19.552,72

Cálculo de Volumes de Terraplenagem						
Eixo: Eixo 03 LD						
Via: Ligação Av. Copacabana / Av. Vale das Pombas						
Estaca	Corte		Aterro		Volume acumulado (m³)	
	Área (m²)	Volume (m³)	Área (m²)	Volume (m³)	Corte	Aterro
165+0,000	2,67	0,00	0,23	0,00	0,00	0,00
166+0,000	6,31	87,65	0,26	5,09	87,65	5,09
167+0,000	3,27	99,43	0,25	4,65	187,08	9,74
168+0,000	1,79	51,62	0,75	10,03	238,70	19,77
169+0,000	1,23	29,95	0,92	16,31	268,65	36,08
170+0,000	2,59	38,23	0,62	15,45	306,89	51,53
171+0,000	1,86	44,64	0,76	14,17	351,52	65,70
172+0,000	0,00	18,70	4,01	47,96	370,22	113,66
173+0,000	0,12	1,23	4,33	82,80	371,45	196,46
174+0,000	0,26	3,85	0,81	50,61	375,30	247,07
175+0,000	0,21	4,68	2,18	29,89	379,98	276,96
176+0,000	0,06	2,67	2,09	42,65	382,65	319,61
177+0,000	0,00	0,56	3,45	55,44	383,21	375,05
178+0,000	0,00	0,00	3,94	73,93	383,21	448,98
179+0,000	0,00	0,00	3,97	79,10	383,21	528,08
180+0,000	0,00	0,00	5,17	91,40	383,21	619,48
181+0,000	0,00	0,00	5,22	103,93	383,21	723,42
182+0,000	0,00	0,00	5,02	102,44	383,21	825,85
183+0,000	0,00	0,00	4,47	94,91	383,21	920,76
184+0,000	0,00	0,00	4,95	94,26	383,21	1.015,02
185+0,000	0,00	0,00	5,44	103,96	383,21	1.118,98
186+0,000	0,00	0,00	4,92	103,58	383,21	1.222,56
187+0,000	0,00	0,00	4,33	92,50	383,21	1.315,06
188+0,000	0,00	0,00	3,83	81,68	383,21	1.396,74
189+0,000	0,00	0,00	3,20	70,35	383,21	1.467,08
190+0,000	0,20	1,98	1,40	45,98	385,19	1.513,07
191+0,000	0,54	7,43	0,70	20,99	392,62	1.534,05
192+0,000	1,16	17,08	0,29	9,95	409,70	1.544,01
193+0,000	2,50	36,62	0,10	3,99	446,32	1.548,00
194+0,000	2,19	46,87	0,17	2,73	493,19	1.550,73
195+0,000	1,44	36,29	0,34	5,09	529,48	1.555,82
196+0,000	0,54	19,84	0,96	13,03	549,33	1.568,85
197+0,000	0,00	5,46	2,33	32,95	554,79	1.601,80
198+0,000	0,13	1,36	1,58	39,16	556,15	1.640,96
199+0,000	1,74	18,75	0,17	17,50	574,90	1.658,46
200+0,000	2,89	46,31	0,17	3,41	621,21	1.661,87
201+0,000	2,53	53,98	0,33	5,14	675,19	1.667,01
202+0,000	1,23	37,50	1,01	13,54	712,69	1.680,55
203+0,000	0,22	14,45	2,19	32,18	727,14	1.712,72
204+0,000	0,00	2,16	4,05	62,48	729,30	1.775,21
205+0,000	0,00	0,00	5,07	90,68	729,30	1.865,88
206+0,000	0,08	0,84	3,76	88,47	730,14	1.954,36
207+0,000	0,63	6,21	4,33	88,39	736,35	2.042,75
208+0,000	2,85	34,34	1,15	55,66	770,69	2.098,40
209+0,000	0,06	29,02	5,43	65,83	799,71	2.164,23
210+0,000	4,62	46,73	0,38	58,14	846,44	2.222,37
211+0,000	7,88	124,95	0,42	8,00	971,39	2.230,37
212+0,000	8,01	158,90	0,46	8,81	1.130,29	2.239,18
213+0,000	6,92	149,33	0,28	7,40	1.279,62	2.246,58
214+0,000	6,86	137,82	0,25	5,24	1.417,43	2.251,82
215+0,000	8,99	158,48	0,16	4,12	1.575,91	2.255,94
216+0,000	8,26	172,85	0,29	4,54	1.748,76	2.260,48
217+0,000	6,61	149,72	1,53	18,05	1.898,48	2.278,53
218+0,000	0,88	75,62	2,16	36,54	1.974,10	2.315,07
219+0,000	2,91	38,26	3,26	53,69	2.012,36	2.368,76
220+0,000	3,37	63,19	4,89	81,57	2.075,55	2.450,33
221+0,000	4,58	80,15	2,86	77,97	2.155,70	2.528,30
222+0,000	5,55	102,46	3,30	61,44	2.258,16	2.589,74
223+0,000	4,80	104,15	2,90	61,82	2.362,31	2.651,56
224+0,000	6,98	117,79	1,58	44,82	2.480,10	2.696,38
225+0,000	7,02	140,58	0,93	25,19	2.620,68	2.721,57
226+0,000	6,87	139,10	4,52	54,84	2.759,78	2.776,41
227+0,000	6,17	130,48	8,72	133,10	2.890,27	2.909,52
228+0,000	5,24	114,46	9,49	182,79	3.004,73	3.092,31
229+0,000	3,48	87,65	8,06	175,60	3.092,38	3.267,91
230+0,000	1,75	52,64	4,39	124,32	3.145,02	3.392,23
231+0,000	2,37	41,20	4,84	92,30	3.186,22	3.484,53
232+0,000	2,87	52,40	5,43	102,68	3.238,61	3.587,21
233+0,000	1,10	39,74	5,70	111,31	3.278,35	3.698,52
234+0,000	1,32	24,24	5,35	110,51	3.302,60	3.809,02
235+0,000	1,56	28,84	2,74	80,88	3.331,44	3.889,90
236+0,000	3,09	46,01	0,85	36,35	3.377,45	3.926,25
237+0,000	4,26	72,91	0,67	15,45	3.450,36	3.941,70
238+0,000	5,78	99,91	0,15	8,30	3.550,27	3.950,00
239+0,000	8,52	142,42	0,08	2,33	3.692,68	3.952,34
240+0,000	8,89	173,16	0,15	2,36	3.865,85	3.954,70
241+0,000	4,39	131,91	0,36	5,19	3.997,75	3.959,89
242+0,000	14,07	183,67	0,00	3,65	4.181,43	3.963,55

Cálculo de Volumes de Terraplenagem						
Eixo: Eixo 03 LD						
Via: Ligação Av. Copacabana / Av. Vale das Pombas						
Estaca	Corte		Aterro		Volume acumulado (m³)	
	Área (m²)	Volume (m³)	Área (m²)	Volume (m³)	Corte	Aterro
243+0,000	14,01	280,84	0,00	0,00	4.462,26	3.963,55
244+0,000	15,35	293,58	0,00	0,00	4.755,84	3.963,55
245+0,000	14,39	297,34	1,76	17,57	5.053,18	3.981,11
246+0,000	13,78	281,66	0,95	27,08	5.334,84	4.008,19
247+0,000	9,54	233,23	0,26	12,14	5.568,07	4.020,33
248+0,000	3,55	130,94	0,49	7,55	5.699,01	4.027,88
249+0,000	0,00	35,52	9,34	98,29	5.734,53	4.126,17
250+0,000	0,00	0,00	22,84	321,74	5.734,53	4.447,91
251+0,000	0,00	0,00	25,88	480,52	5.734,53	4.928,43
252+0,000	0,00	0,00	15,14	403,83	5.734,53	5.332,26
253+0,000	0,00	0,00	13,50	283,14	5.734,53	5.615,40
254+0,000	0,00	0,00	11,77	250,62	5.734,53	5.866,02
255+0,000	0,00	0,00	6,45	182,02	5.734,53	6.048,04
256+0,000	0,00	0,01	12,08	185,22	5.734,54	6.233,26
257+0,000	0,00	0,00	9,85	220,26	5.734,54	6.453,52
258+0,000	0,00	0,00	7,77	177,44	5.734,54	6.630,96
259+0,000	0,00	0,00	6,37	141,87	5.734,54	6.772,83
260+0,000	0,04	0,44	3,10	94,60	5.734,97	6.867,42
261+0,000	0,23	2,78	2,08	51,64	5.737,75	6.919,06
262+0,000	1,77	20,01	0,41	24,92	5.757,76	6.943,98
263+0,000	4,41	61,83	0,23	6,41	5.819,59	6.950,39
264+0,000	7,36	117,74	0,04	2,63	5.937,33	6.953,02
265+0,000	4,66	119,89	0,27	3,14	6.057,21	6.956,16
266+0,000	7,62	122,51	0,01	2,89	6.179,72	6.959,05
267+0,000	9,97	175,96	0,00	0,12	6.355,68	6.959,17
268+0,000	11,29	212,58	0,00	0,00	6.568,26	6.959,17
269+0,000	13,15	244,35	0,00	0,00	6.812,61	6.959,17
270+0,000	13,29	264,39	0,00	0,00	7.077,00	6.959,17
271+0,000	13,73	270,20	0,00	0,00	7.347,20	6.959,17
272+0,000	13,73	274,60	0,00	0,00	7.621,80	6.959,17
273+0,000	12,95	266,84	0,00	0,00	7.888,64	6.959,17
274+0,000	13,23	261,85	0,00	0,00	8.150,49	6.959,17
275+0,000	13,77	269,99	0,00	0,00	8.420,48	6.959,17
276+0,000	14,49	283,03	0,00	0,00	8.703,52	6.959,17
277+0,000	15,52	300,67	0,00	0,00	9.004,19	6.959,17
278+0,000	15,86	313,87	0,00	0,00	9.318,06	6.959,17
279+0,000	16,00	318,66	0,00	0,00	9.636,72	6.959,17
280+0,000	16,23	322,30	0,00	0,00	9.959,02	6.959,17
281+0,000	17,99	342,16	0,00	0,00	10.301,18	6.959,17
282+0,000	21,16	396,60	0,00	0,00	10.697,77	6.959,17
283+0,000	19,12	410,87	0,00	0,00	11.108,65	6.959,17
284+0,000	12,11	317,55	0,00	0,00	11.426,19	6.959,17
285+0,000	7,13	195,28	0,03	0,24	11.621,47	6.959,41
286+0,000	5,63	128,61	0,16	1,75	11.750,08	6.961,17
287+0,000	4,11	97,45	0,31	4,64	11.847,53	6.965,81
288+0,000	3,31	74,26	0,31	6,19	11.921,79	6.972,00
289+0,000	3,80	71,10	0,41	7,19	11.992,89	6.979,18
290+0,000	5,17	89,66	0,11	5,20	12.082,56	6.984,38
291+0,000	5,86	110,28	0,04	1,49	12.192,84	6.985,87
292+0,000	5,03	108,89	0,09	1,24	12.301,73	6.987,11
293+0,000	2,43	74,65	0,38	4,63	12.376,38	6.991,74
294+0,000	4,25	66,80	0,24	6,13	12.443,18	6.997,87
295+0,000	3,23	74,79	0,35	5,89	12.517,97	7.003,76
296+0,000	3,81	70,45	0,18	5,35	12.588,42	7.009,11
297+0,000	2,87	66,84	0,63	8,10	12.655,26	7.017,21
298+0,000	0,97	38,40	3,52	41,46	12.693,66	7.058,66
299+0,000	0,00	9,67	4,46	79,81	12.703,33	7.138,47
300+0,000	0,69	6,94	1,21	56,69	12.710,27	7.195,16
301+0,000	0,48	11,78	1,24	24,44	12.722,05	7.219,60
302+0,000	1,32	18,05	1,08	23,15	12.740,10	7.242,75
303+0,000	0,13	14,48	2,29	33,68	12.754,58	7.276,43
304+0,000	0,01	1,37	7,76	100,49	12.755,96	7.376,92
305+0,000	0,00	0,10	3,92	116,76	12.756,05	7.493,69
306+0,000	0,00	0,00	6,34	102,55	12.756,06	7.596,23
307+0,000	0,00	0,00	14,33	205,39	12.756,06	7.801,62
308+0,000	0,00	0,00	21,77	348,44	12.756,06	8.150,06
309+0,000	0,00	0,00	27,61	477,47	12.756,06	8.627,53
310+0,000	0,00	0,00	50,65	782,59	12.756,06	9.410,12
311+0,000	0,00	0,00	12,48	631,30	12.756,06	10.041,42
312+0,000	0,03	0,27	2,29	147,71	12.756,32	10.189,14
313+0,000	0,86	8,89	0,61	29,04	12.765,21	10.218,17
314+0,000	1,15	20,10	0,74	13,49	12.785,31	10.231,66
315+0,000	0,49	16,41	1,04	17,77	12.801,72	10.249,43
316+0,000	1,11	15,95	0,74	17,81	12.817,68	10.267,24
317+0,000	1,74	28,52	0,64	13,83	12.846,20	10.281,07
318+0,000	1,93	36,71	0,65	12,89	12.882,91	10.293,96
319+0,000	1,75	36,80	1,39	20,43	12.919,71	10.314,39
320+0,000	0,67	24,18	1,75	31,45	12.943,89	10.345,84



Cálculo de Volumes de Terraplenagem						
Eixo: Eixo 03 LD						
Via: Ligação Av. Copacabana / Av. Vale das Pombas						
Estaca	Corte		Aterro		Volume acumulado (m³)	
	Área (m²)	Volume (m³)	Área (m²)	Volume (m³)	Corte	Aterro
321+0,000	1,36	20,30	0,91	26,60	12.964,19	10.372,43
322+0,000	1,04	24,03	0,88	17,92	12.988,22	10.390,35
323+0,000	1,36	23,98	0,41	12,93	13.012,20	10.403,28
324+0,000	0,98	23,35	0,85	12,57	13.035,55	10.415,85
325+0,000	1,37	23,42	0,72	15,63	13.058,98	10.431,48

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### **3 NOTAS DE SERVIÇO DE TERRAPLENAGEM**

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As notas de serviço de terraplenagem para a implantação da ligação projetada são apresentadas a seguir:

Eixo:	Notas de Serviço de Terraplenagem																		
Via:	Ligeirão Av. Copacabana / Av. Vale das Pombas																		
Estaca	Offset				Bordo Esquerdo				Eixo				Bordo Direito				Cidreira		
	dist (m)	coia (m)	dist (m)	coia (m)	dist (m)	i (%)	coia terrap (m)	coia terreno	coia proj	Cota verim	X	Y	coia terrap (m)	i (%)	dist (m)	coia (m)	dist (m)		
134+0.000	6.73	760.083	6.25	760.256	4.25	-2.0%	760.106	760.445	760.131	-0.25	693.532.01	8.140.144.53	760.276	2.0%	4.25	760.426	4.75	760.426	6.75
135+0.000	7.25	760.443	6.25	760.562	4.25	-2.0%	760.412	760.748	760.497	-0.25	693.544.73	8.140.159.06	760.582	2.0%	4.25	760.732	4.75	760.732	6.75
136+0.000	7.07	760.896	6.25	760.891	4.25	-2.0%	760.741	761.176	760.826	-0.35	693.558.47	8.140.172.60	760.911	2.0%	4.25	761.061	4.75	761.061	6.75
137+0.000	6.79	761.414	6.25	761.221	4.25	-2.0%	761.071	761.482	761.156	-0.35	693.572.21	8.140.187.14	761.241	2.0%	4.25	761.391	4.75	761.391	6.75
138+0.000	6.90	761.667	6.25	761.549	4.25	-2.0%	761.359	761.750	761.484	-0.27	693.585.94	8.140.201.67	761.569	2.0%	4.25	761.719	4.75	761.719	6.75
139+0.000	6.84	761.975	6.25	761.818	4.25	-2.0%	761.668	762.006	761.753	-0.25	693.599.68	8.140.216.21	761.838	2.0%	4.25	761.988	4.75	761.988	6.75
140+0.000	6.92	762.110	6.25	762.005	4.25	-2.0%	761.895	762.221	761.940	-0.28	693.613.41	8.140.230.75	762.025	2.0%	4.25	762.175	4.75	762.175	6.75
141+0.000	6.95	762.194	6.25	762.109	4.25	-2.0%	761.959	762.304	762.044	-0.26	693.627.15	8.140.245.28	762.129	2.0%	4.25	762.279	4.75	762.279	6.75
142+0.000	6.75	762.348	6.25	762.130	4.25	-2.0%	761.980	762.397	762.065	-0.33	693.640.89	8.140.259.82	762.150	2.0%	4.25	762.300	4.75	762.300	6.75
143+0.000	6.93	762.166	6.25	762.068	4.25	-2.0%	761.918	762.257	762.003	-0.26	693.654.64	8.140.274.34	762.088	2.0%	4.25	762.238	4.75	762.238	6.75
144+0.000	6.71	762.166	6.25	761.923	4.25	-2.0%	761.773	762.407	761.858	-0.55	693.668.63	8.140.288.64	761.943	2.0%	4.25	762.093	4.75	762.093	6.75
145+0.000	6.75	761.913	6.25	761.695	4.25	-2.0%	761.545	761.939	761.630	-0.30	693.682.90	8.140.302.65	761.715	2.0%	4.25	761.865	4.75	761.865	6.75
146+0.000	6.55	761.733	6.25	761.384	4.25	-2.0%	761.234	761.641	761.319	-0.32	693.697.44	8.140.316.38	761.404	2.0%	4.25	761.554	4.75	761.554	6.75
147+0.000	6.35	761.476	6.25	760.990	4.25	-2.0%	760.840	761.344	760.925	-0.42	693.712.13	8.140.329.95	761.010	2.0%	4.25	761.160	4.75	761.160	6.75
148+0.000	6.30	761.083	6.25	760.514	4.25	-2.0%	760.364	760.890	760.469	-0.44	693.726.82	8.140.343.52	760.534	2.0%	4.25	760.684	4.75	760.684	6.75
149+0.000	6.26	760.489	6.25	759.956	4.25	-2.0%	759.806	760.338	759.891	-0.45	693.741.51	8.140.357.09	759.976	2.0%	4.25	760.126	4.75	760.126	6.75
150+0.000	6.28	759.934	6.25	759.373	4.25	-2.0%	759.223	759.866	759.308	-0.56	693.756.20	8.140.370.65	759.393	2.0%	4.25	759.543	4.75	759.543	6.75
151+0.000	6.74	759.504	6.25	758.790	4.25	-2.0%	758.640	759.480	759.725	-0.75	693.770.83	8.140.384.23	758.810	2.0%	4.25	758.960	4.75	758.960	6.75
152+0.000	7.01	759.010	6.25	758.208	4.25	-2.0%	758.058	759.947	759.143	-0.80	693.785.58	8.140.397.81	758.278	2.0%	4.25	759.378	4.75	759.378	6.75
153+0.000	6.89	758.389	6.25	757.625	4.25	-2.0%	757.475	759.378	757.560	-0.82	693.800.27	8.140.411.38	757.645	2.0%	4.25	757.795	4.75	757.795	6.75
154+0.000	6.97	757.831	6.25	757.042	4.25	-2.0%	756.892	757.815	756.977	-0.84	693.814.97	8.140.424.95	757.062	2.0%	4.25	757.212	4.75	757.212	6.75
155+0.000	6.75	757.174	6.25	756.459	4.25	-2.0%	756.309	757.154	756.394	-0.76	693.829.66	8.140.438.52	756.479	2.0%	4.25	756.629	4.75	756.629	6.75
156+0.000	6.89	756.336	6.25	755.876	4.25	-2.0%	755.726	756.384	755.811	-0.95	693.844.33	8.140.452.09	755.886	2.0%	4.25	756.046	4.75	756.046	6.75
157+0.000	6.51	755.928	6.25	755.294	4.25	-2.0%	755.144	755.964	755.229	-0.71	693.859.04	8.140.465.66	755.314	2.0%	4.25	755.464	4.75	755.464	6.75
158+0.000	6.31	755.282	6.25	754.711	4.25	-2.0%	754.561	755.097	754.646	-0.41	693.873.73	8.140.479.23	754.731	2.0%	4.25	754.881	4.75	754.881	6.75
159+0.000	6.77	754.330	6.25	754.128	4.25	-2.0%	753.978	754.412	754.063	-0.35	693.888.46	8.140.492.76	754.148	2.0%	4.25	754.298	4.75	754.298	6.75
160+0.000	6.64	753.866	6.25	753.518	4.25	-2.0%	753.368	753.887	753.453	-0.43	693.903.33	8.140.506.14	753.538	2.0%	4.25	753.688	4.75	753.688	6.75
161+0.000	6.45	753.265	6.25	752.851	4.25	-2.0%	752.701	753.486	752.786	-0.66	693.918.32	8.140.519.38	752.871	2.0%	4.25	753.021	4.75	753.021	6.75
162+0.000	6.81	752.332	6.25	752.157	4.25	-2.0%	752.007	752.502	752.092	-0.42	693.933.33	8.140.532.59	752.177	2.0%	4.25	752.327	4.75	752.327	6.75
163+0.000	6.48	751.857	6.25	751.463	4.25	-2.0%	751.313	752.033	751.398	-0.63	693.948.35	8.140.545.80	751.483	2.0%	4.25	751.633	4.75	751.633	6.75
164+0.000	6.79	750.360	6.25	750.788	4.25	-2.0%	750.618	751.159	750.703	-0.46	693.963.36	8.140.559.01	750.788	2.0%	4.25	750.938	4.75	750.938	6.75
165+0.000	6.92	750.177	6.25	750.074	4.25	-2.0%	749.924	750.393	750.009	-0.38	693.978.38	8.140.572.23	750.094	2.0%	4.25	750.244	4.75	750.244	6.75
166+0.000	6.41	749.821	6.25	749.380	4.25	-2.0%	749.230	749.883	749.315	-0.57	693.993.15	8.140.585.70	749.400	2.0%	4.25	749.550	4.75	749.550	6.75
167+0.000	6.61	748.936	6.25	748.686	4.25	-2.0%	748.536	749.029	748.621	-0.41	694.005.70	8.140.600.21	748.706	2.0%	4.25	748.856	4.75	748.856	6.75
168+0.000	6.81	748.169	6.25	747.991	4.25	-2.0%	747.841	748.336	747.926	-0.41	694.022.48	8.140.613.00	748.011	2.0%	4.25	748.161	4.75	748.161	6.75
169+0.000	6.69	747.551	6.25	747.295	4.25	-3.0%	747.105	747.634	747.232	-0.40	694.037.60	8.140.625.07	747.360	3.0%	4.25	747.510	4.75	747.510	6.75
170+0.000	6.37	747.074	6.25	746.561	4.25	-3.0%	746.411	747.136	746.538	-0.60	694.050.09	8.140.640.63	746.666	3.0%	4.25	746.816	4.75	746.816	6.75
171+0.000	6.54	746.556	6.25	745.866	4.25	-3.0%	745.716	746.627	745.843	-0.78	694.058.35	8.140.658.78	745.971	3.0%	4.25	746.121	4.75	746.121	6.75
172+0.000	6.30	745.811	6.25	745.250	4.25	-3.0%	745.100	745.732	745.227	-0.50	694.061.85	8.140.673.42	745.335	3.0%	4.25	745.505	4.75	745.505	6.75
173+0.000	7.29	745.726	6.25	744.788	4.25	-3.0%	744.638	745.346	744.765	-0.58	694.066.39	8.140.688.32	744.893	3.0%	4.25	745.043	4.75	745.043	6.75
174+0.000	6.71	745.227	6.25	744.523	4.25	-2.0%	744.373	744.938	744.458	-0.46	694.050.14	8.140.717.61	744.693	2.0%	4.25	744.693	4.75	744.693	6.75
175+0.000	6.47	744.994	6.25	744.371	4.25	-2.0%	744.221	744.741	744.306	-0.44	694.049.64	8.140.736.84	744.391	2.0%	4.25	744.541	4.75	744.541	6.75
176+0.000	6.28	744.828	6.25	744.295	4.25	-2.0%	744.145	744.613	744.230	-0.38	694.044.14	8.140.756.07	744.315	2.0%	4.25	744.465	4.75	744.465	6.75
177+0.000	6.39	744.680	6.25	744.220	4.25	-2.0%	744.070	744.555	744.155	-0.18	694.039.64	8.140.775.29	744.240	2.0%	4.25	744.390	4.75	744.390	6.75
178+0.000	6.55	744.484	6.25	744.145	4.25	-2.0%	743.995	744.272	744.080	-0.19	694.033.14	8.140.794.52	744.165	2.0%	4.25	744.315	4.75	744.315	6.75
179+0.000	6.59	744.397	6.25	744.070	4.25	-2.0%	743.920	744.520	744.005	-0.51	694.027.63	8.140.813.75	744.090	2.0%	4.25	744.240	4.75	744.240	6.75
180+0.000	6.66	744.273	6.25	743.995	4.25	-2.0%	743.845	744.274	743.930	-0.34	694.022.13	8.140.833.98	744.015	2.0%	4.25	744.165	4.75	744.165	6.75
181+0.000	6.53	744.284	6.25	743.920	4.25	-2.0%	743.770	744.282	743.855	-0.41	694.016.63	8.140.853.22	743.940	2.0%	4.25	744.060	4.75	744.060	6.75
182+0.000	6.58	744.173	6.25	743.845	4.25	-2.0%	743.695	744.075	743.780	-0.30	694.011.13	8.140.871.44	743.865	2.0%	4.25	744.015	4.75	744.015	6.75
183+0.000	6.49	744.163	6.25	743.769	4.25	-2.0%	743.619	744.188	743.704	-0.46	694.005.63	8.140.890.67	743.789	2.0%	4.25	743.939	4.75	743.939	6.75
184+0.000	6.29	744.220	6.25	743.694	4.25	-2.0%	743.544	743.707	743.629	-0.08	694.000.13	8.140.909.89	743.714	2.0%	4.25	743.864	4.75	743.864	6.75
185+0.000	6.35	744.106	6.25	743.619	4.25	-2.0%	743.469	743.815</											

Eixo: Eixo 01 LE		Notas de Serviço de Terraplenagem															
Via: Ligação Av. Copacabana / Av. Vale das Pombas																	
Estaca	Offset	Passivo				Bordo Esquerdo				Eixo				Bordo Direito			
		dist (m)	coia (m)	dist (m)	coia (m)	dist (m)	coia (m)	coia terrap	coia terreno	coia proj	coia verim	X	Y	coia terrap	i (%)	dist (m)	coia (m)
188+0.000	6.58	744.064	6.25	743.394	4.25	-2.0%	743.244	744.379	743.329	-1.0%	693.976.12	8.140.986.81	743.414	2.0%	4.25	743.564	4.75
189+0.000	6.52	743.921	6.25	743.319	4.25	-2.0%	743.169	743.735	743.254	-0.4%	693.977.62	8.141.006.04	743.389	2.0%	4.25	743.489	4.75
190+0.000	6.39	743.698	6.25	743.243	4.25	-2.0%	743.093	744.022	743.178	-0.64	693.967.12	8.141.025.26	743.263	2.0%	4.25	743.413	4.75
191+0.000	6.56	743.514	6.25	743.168	4.25	-2.0%	743.018	743.744	743.103	-0.64	693.961.62	8.141.044.49	743.188	2.0%	4.25	743.338	4.75
192+0.000	6.70	743.342	6.25	743.093	4.25	-2.0%	742.943	743.593	743.028	-0.56	693.956.11	8.141.063.72	743.113	2.0%	4.25	743.263	4.75
193+0.000	6.56	743.496	6.25	743.018	4.25	-2.0%	742.868	743.593	742.953	-0.63	693.950.61	8.141.082.95	743.038	2.0%	4.25	743.188	4.75
194+0.000	6.74	743.144	6.25	742.924	4.25	-2.0%	742.774	743.525	742.859	-0.67	693.945.11	8.141.102.18	742.944	2.0%	4.25	743.094	4.75
195+0.000	6.27	743.288	6.25	742.731	4.25	-2.0%	742.581	743.713	742.666	-1.0%	693.939.61	8.141.121.41	742.751	2.0%	4.25	742.901	4.75
196+0.000	6.42	743.038	6.25	742.432	4.25	-2.0%	742.282	743.031	742.367	-0.66	693.934.11	8.141.140.64	742.452	2.0%	4.25	742.602	4.75
197+0.000	6.46	742.646	6.25	742.027	4.25	-2.0%	741.877	742.656	741.962	-0.69	693.928.61	8.141.159.86	742.047	2.0%	4.25	742.197	4.75
198+0.000	6.56	742.169	6.25	741.515	4.25	-2.0%	741.365	742.347	741.450	-0.90	693.923.11	8.141.178.09	741.535	2.0%	4.25	741.685	4.75
199+0.000	6.42	741.333	6.25	740.896	4.25	-2.0%	740.746	741.677	740.831	-0.85	693.917.60	8.141.198.32	740.916	2.0%	4.25	741.066	4.75
200+0.000	6.51	740.589	6.25	740.190	4.25	-2.0%	740.040	740.695	740.125	-0.57	693.912.23	8.141.217.60	740.210	2.0%	4.25	740.360	4.75
201+0.000	6.47	739.883	6.25	739.476	4.25	-2.0%	739.326	739.711	739.411	-0.30	693.906.12	8.141.237.16	739.456	2.0%	4.25	739.546	4.75
202+0.000	6.55	739.115	6.25	738.762	4.25	-2.0%	738.612	738.823	738.697	-0.13	693.905.21	8.141.256.34	738.782	2.0%	4.25	738.932	4.75
203+0.000	6.87	738.182	6.25	738.048	4.25	-2.0%	737.898	737.868	737.983	0.11	693.902.89	8.141.276.81	738.068	2.0%	4.25	738.218	4.75
204+0.000	6.50	737.715	6.25	737.333	4.25	-2.0%	737.183	737.332	737.268	-0.06	693.897.17	8.141.295.63	737.353	2.0%	4.25	737.503	4.75
205+0.000	6.41	737.064	6.25	736.619	4.25	-2.0%	736.469	736.766	736.594	-0.21	693.882.23	8.141.308.82	736.639	2.0%	4.25	736.789	4.75
206+0.000	6.49	736.536	6.25	736.105	4.25	-2.0%	735.951	736.388	736.340	-0.55	693.881.68	8.141.327.92	736.075	2.0%	4.25	736.075	4.75
207+0.000	6.63	735.489	6.25	735.191	4.25	-2.0%	735.041	735.477	735.126	-0.32	693.897.78	8.141.338.23	735.211	2.0%	4.25	735.361	4.75
208+0.000	7.10	735.310	6.25	734.476	4.25	-2.0%	734.326	735.026	734.411	-0.62	693.916.88	8.141.343.95	734.496	2.0%	4.25	734.646	4.75
209+0.000	7.78	734.823	6.25	735.762	4.25	-2.0%	735.612	734.137	735.697	-0.44	693.935.76	8.141.350.55	735.782	2.0%	4.25	735.932	4.75
210+0.000	8.37	734.305	6.25	735.048	4.25	-2.0%	732.898	733.112	732.983	-0.13	693.954.64	8.141.357.15	733.068	2.0%	4.25	733.218	4.75
211+0.000	8.03	732.477	6.25	732.334	4.25	-2.0%	732.184	732.300	732.269	-0.03	693.973.52	8.141.363.74	732.354	2.0%	4.25	732.504	4.75
212+0.000	7.13	732.464	6.25	731.620	4.25	-2.0%	731.470	731.543	731.555	0.01	693.992.40	8.141.370.34	731.640	2.0%	4.25	731.790	4.75
213+0.000	8.37	731.495	6.25	730.905	4.25	-2.0%	730.755	730.526	730.840	0.31	694.011.28	8.141.376.84	730.925	2.0%	4.25	731.075	4.75
214+0.000	6.56	730.532	6.25	730.191	4.25	-2.0%	730.041	729.806	730.126	0.32	694.030.16	8.141.383.54	730.211	2.0%	4.25	730.361	4.75
215+0.000	6.64	729.836	6.25	729.456	4.25	-2.0%	729.306	729.494	729.313	0.48	694.049.04	8.141.390.13	729.476	2.0%	4.25	729.626	4.75
216+0.000	6.60	728.348	6.25	728.633	4.25	-2.0%	728.483	728.108	728.588	0.46	694.067.92	8.141.396.73	728.653	2.0%	4.25	728.803	4.75
217+0.000	8.17	726.986	6.25	727.719	4.25	-2.0%	727.569	727.022	727.694	0.57	694.086.80	8.141.403.33	727.739	2.0%	4.25	727.889	4.75
218+0.000	7.75	726.263	6.25	726.712	4.25	-2.0%	726.562	725.950	726.647	0.70	694.106.54	8.141.410.32	726.732	2.0%	4.25	726.882	4.75
219+0.000	6.74	725.836	6.25	725.613	4.25	-2.0%	725.463	724.970	725.548	0.58	694.123.78	8.141.418.52	725.633	2.0%	4.25	725.783	4.75
220+0.000	6.51	724.797	6.25	724.422	4.25	-2.0%	724.272	724.191	724.357	0.17	694.143.63	8.141.427.52	724.442	2.0%	4.25	724.592	4.75
221+0.000	6.77	723.365	6.25	723.161	4.25	-2.0%	723.011	722.920	723.096	0.18	694.158.41	8.141.438.47	723.181	2.0%	4.25	723.331	4.75
222+0.000	6.45	722.310	6.25	721.894	4.25	-2.0%	721.744	721.651	721.829	0.20	694.174.66	8.141.450.13	721.914	2.0%	4.25	722.064	4.75
223+0.000	6.57	720.967	6.25	720.627	4.25	-2.0%	720.477	720.404	720.562	0.16	694.190.09	8.141.462.85	720.647	2.0%	4.25	720.797	4.75
224+0.000	6.58	719.693	6.25	719.360	4.25	-2.0%	719.210	719.388	719.295	-0.09	694.204.65	8.141.476.56	719.380	2.0%	4.25	719.530	4.75
225+0.000	7.26	718.981	6.25	718.094	4.25	-2.0%	717.944	718.590	718.029	-0.56	694.218.87	8.141.490.61	718.114	2.0%	4.25	718.264	4.75
226+0.000	7.60	717.927	6.25	716.827	4.25	-2.0%	716.677	717.360	716.782	-0.60	694.232.80	8.141.504.97	716.847	2.0%	4.25	716.997	4.75
227+0.000	7.97	716.683	6.25	715.560	4.25	-2.0%	715.410	716.107	715.495	-0.61	694.246.24	8.141.519.78	715.580	2.0%	4.25	715.730	4.75
228+0.000	6.26	714.840	6.25	714.293	4.25	-2.0%	714.143	714.560	714.228	-0.33	694.259.18	8.141.535.02	714.313	2.0%	4.25	714.463	4.75
229+0.000	6.37	713.500	6.25	713.027	4.25	-2.0%	712.877	713.131	713.962	-0.15	694.271.61	8.141.550.63	713.047	2.0%	4.25	713.197	4.75
230+0.000	6.51	712.135	6.25	711.760	4.25	-2.0%	711.610	711.454	711.695	0.24	694.283.50	8.141.566.77	711.760	2.0%	4.25	711.930	4.75
231+0.000	6.55	711.144	6.25	710.493	4.25	-2.0%	710.343	710.118	710.498	0.31	694.294.85	8.141.583.24	710.513	2.0%	4.25	711.663	4.75
232+0.000	6.37	709.817	6.25	709.226	4.25	-2.0%	709.076	708.760	709.161	0.40	694.305.74	8.141.600.02	709.246	2.0%	4.25	709.396	4.75
233+0.000	6.36	708.438	6.25	707.960	4.25	-2.0%	707.810	708.131	707.895	-0.24	694.316.55	8.141.616.83	707.960	2.0%	4.25	708.130	4.75
234+0.000	6.44	707.114	6.25	706.693	4.25	-2.0%	706.543	707.172	706.628	-0.54	694.327.35	8.141.633.65	706.713	2.0%	4.25	706.863	4.75
235+0.000	6.52	705.795	6.25	705.490	4.25	-0.5%	705.340	705.874	705.361	-0.51	694.338.22	8.141.650.46	705.382	0.5%	4.25	705.532	4.75
236+0.000	6.64	704.451	6.25	704.117	4.25	-3.0%	703.967	704.411	704.094	-0.32	694.349.04	8.141.667.28	704.222	3.0%	4.25	704.372	4.75
237+0.000	6.80	703.109	6.25	702.894	4.25	-3.0%	702.794	702.193	702.861	0.67	694.360.36	8.141.683.76	702.969	3.0%	4.25	703.139	4.75
238+0.000	6.89	701.881	6.25	701.716	4.25	-3.0%	701.566	701.064	701.693	0.83	694.372.78	8.141.699.43	701.821	3.0%	4.25	701.971	4.75
239+0.000	7.14	700.612	6.25	700.616	4.25	-3.0%	700.466	699.986	700.593	0.96	694.386.25	8.141.714.22	700.721	3.0%	4.25	700.871	4.75
240+0.000	6.40	700.072	6.25	699.581	4.25	-3.0%	699.431	699.986	699.558	0.57	694.400.70	8.141.728.04	699.686	3.0%	4.25	699.836	4.75
241+0.000	6.68	699.348	6.25	698.613	4.25	-3.0%	698.463	698.341	698.590	0.25	694.414.06	8.141.740.84	698.718	3.0%	4.25	698.868	4.75



Notas de Serviço de Terraplenagem														
Eixo: Eixo 01 LE														
Via: Ligação Av. Copacabana / Av. Vale das Pombas														
Estaca	Offset		Passivo		Bordo Esquerdo		Eixo		Bordo Direito		Cota			
	dist (m)	cota (m)	dist (m)	cota (m)	dist (m)	cota terrapén	cora verim	cora proj	cora terreno	cora p/roj	X	Y	i (%)	dist (m)
2474+0,000	6,99	698,516	6,25	697,628	4,25	-3,0%	697,528	697,427	697,655	0,23	694,432,26	8,141,752,56	3,0%	697,763
2474+0,000	6,91	697,554	6,25	696,742	4,25	-3,0%	696,592	696,733	696,719	-0,01	694,448,23	8,141,765,14	3,0%	696,847
2474+0,000	7,95	696,967	6,25	695,913	4,25	-0,5%	695,763	695,216	695,894	-0,43	694,466,69	8,141,772,89	0,5%	695,805
2474+0,000	8,17	696,105	6,25	694,914	4,25	-2,0%	694,764	693,324	694,849	-0,48	694,484,18	8,141,782,60	2,0%	694,934
2474+0,000	8,17	695,169	6,25	693,979	4,25	-2,0%	693,829	694,469	693,914	-0,55	694,500,66	8,141,792,31	2,0%	694,149
2474+0,000	8,10	694,211	6,25	693,044	4,25	-2,0%	692,894	693,955	693,979	0,04	694,515,15	8,141,802,02	2,0%	693,214
2474+0,000	7,85	693,193	6,25	692,109	4,25	-2,0%	691,959	692,044	692,044	0,41	694,536,63	8,141,811,73	2,0%	692,279
2474+0,000	6,96	691,993	6,25	691,174	4,25	-2,0%	691,024	690,198	691,109	0,91	694,554,11	8,141,821,44	2,0%	691,344
2474+0,000	6,77	690,443	6,25	690,260	4,25	-1,5%	690,110	689,161	690,174	1,01	694,571,60	8,141,831,15	1,5%	690,388
2474+0,000	8,55	688,468	6,25	689,364	4,25	-4,0%	689,214	688,476	689,394	0,96	694,589,08	8,141,840,86	4,0%	689,704
2474+0,000	9,94	687,303	6,25	688,125	4,25	-4,0%	688,375	687,552	688,145	1,59	694,606,59	8,141,850,53	4,0%	688,465
2474+0,000	9,98	687,606	6,25	689,458	4,25	-4,0%	688,308	687,650	689,478	1,83	694,626,08	8,141,858,09	4,0%	688,798
2474+0,000	9,22	689,020	6,25	690,364	4,25	-4,0%	690,214	688,677	690,394	1,71	694,644,62	8,141,862,22	4,0%	690,704
2474+0,000	3,00	690,500	6,25	691,698	4,25	-4,0%	691,548	689,714	691,718	2,00	694,664,58	8,141,862,81	4,0%	692,088
2474+0,000	8,85	691,956	6,25	693,056	4,25	-4,0%	692,906	691,248	693,076	1,83	694,682,38	8,141,853,82	4,0%	693,396
2474+0,000	8,45	693,582	6,25	694,519	4,25	-1,5%	694,369	693,592	694,433	0,84	694,702,64	8,141,854,59	1,5%	694,647
2474+0,000	8,90	694,532	6,25	695,707	4,25	-3,0%	695,557	694,343	695,694	1,34	694,722,93	8,141,849,33	3,0%	695,962
2474+0,000	8,74	693,529	6,25	696,653	4,25	-4,0%	696,503	695,174	696,673	1,50	694,742,53	8,141,845,85	4,0%	696,993
2474+0,000	8,82	696,302	6,25	697,379	4,25	-4,0%	697,229	696,149	697,399	1,25	694,762,56	8,141,846,35	4,0%	697,719
2474+0,000	8,74	696,817	6,25	697,842	4,25	-4,0%	697,692	696,873	697,862	0,99	694,782,02	8,141,850,81	4,0%	698,182
2474+0,000	8,52	697,163	6,25	698,041	4,25	-4,0%	697,891	697,134	698,061	0,93	694,800,21	8,141,859,04	4,0%	698,381
2474+0,000	8,48	697,128	6,25	698,020	4,25	-3,0%	697,870	697,937	697,937	0,63	694,817,20	8,141,863,59	3,0%	698,275
2474+0,000	8,05	697,108	6,25	697,756	4,25	-2,0%	697,606	697,506	697,691	0,19	694,834,16	8,141,880,19	2,0%	697,926
2474+0,000	7,59	697,060	6,25	697,253	4,25	-2,0%	697,122	697,338	697,423	0,22	694,851,12	8,141,889,80	2,0%	697,573
2474+0,000	7,31	696,893	6,25	697,050	4,25	-2,0%	696,900	696,432	696,985	0,49	694,869,62	8,141,900,13	2,0%	697,220
2474+0,000	7,31	696,537	6,25	696,696	4,25	-2,0%	696,546	696,393	696,631	0,24	694,885,68	8,141,910,91	2,0%	696,716
2474+0,000	7,00	696,392	6,25	696,343	4,25	-2,0%	696,133	696,551	696,278	-0,27	694,902,44	8,141,920,11	2,0%	696,383
2474+0,000	6,77	696,195	6,25	695,990	4,25	-2,0%	695,840	696,011	695,925	-0,09	694,917,31	8,141,929,09	2,0%	696,160
2474+0,000	6,77	695,840	6,25	695,636	4,25	-2,0%	695,486	695,595	695,571	-0,03	694,939,18	8,141,938,06	2,0%	695,806
2474+0,000	6,76	695,495	6,25	695,283	4,25	-2,0%	695,133	695,218	695,218	-0,04	694,957,06	8,141,947,04	2,0%	695,493
2474+0,000	6,72	695,167	6,25	694,980	4,25	-2,0%	694,863	694,863	694,865	0,00	694,974,93	8,141,956,02	2,0%	695,100
2474+0,000	6,68	694,838	6,25	694,576	4,25	-2,0%	694,476	694,473	694,511	0,04	694,992,80	8,141,965,00	2,0%	694,746
2474+0,000	6,64	694,510	6,25	694,223	4,25	-2,0%	694,073	694,096	694,138	0,06	695,016,67	8,141,973,98	2,0%	694,393
2474+0,000	6,58	694,202	6,25	693,870	4,25	-2,0%	693,720	693,695	693,805	0,11	695,026,54	8,141,982,96	2,0%	694,040
2474+0,000	6,53	693,880	6,25	693,516	4,25	-2,0%	693,366	693,233	693,451	0,22	695,046,41	8,141,991,94	2,0%	693,686
2474+0,000	6,64	693,450	6,25	693,163	4,25	-2,0%	693,013	692,773	693,098	0,32	695,064,18	8,142,000,11	2,0%	693,333
2474+0,000	6,64	693,097	6,25	692,810	4,25	-2,0%	692,660	692,830	692,830	2,0%	695,081,77	8,142,010,64	2,0%	692,980
2474+0,000	7,05	692,474	6,25	692,456	4,25	-2,0%	692,306	692,099	692,391	0,29	695,093,16	8,142,020,52	2,0%	692,626
2474+0,000	7,50	691,817	6,25	691,102	4,25	-2,0%	690,952	690,255	690,937	-0,22	695,116,46	8,142,030,54	2,0%	692,272
2474+0,000	6,95	691,341	6,25	691,692	4,25	-2,0%	691,542	691,427	691,697	0,20	695,133,77	8,142,040,57	2,0%	691,862
2474+0,000	6,51	691,568	6,25	691,147	4,25	-3,0%	690,997	690,849	691,124	0,27	695,151,08	8,142,050,59	3,0%	691,402
2474+0,000	6,81	690,771	6,25	690,508	4,25	-4,0%	690,358	690,438	690,528	-0,12	695,168,36	8,142,060,65	4,0%	690,848
2474+0,000	8,15	691,089	6,25	689,819	4,25	-4,0%	689,669	690,405	689,899	-0,57	695,183,93	8,142,070,18	4,0%	690,159
2474+0,000	7,80	690,187	6,25	689,037	4,25	-4,0%	688,887	690,099	689,029	-0,97	695,195,95	8,142,080,37	4,0%	688,377
2474+0,000	6,66	688,933	6,25	688,163	4,25	-3,0%	688,013	688,301	688,183	-0,12	695,203,69	8,142,107,47	3,0%	688,503
2474+0,000	6,72	688,043	6,25	687,294	4,25	-3,0%	687,144	687,337	687,271	-0,06	695,207,07	8,142,127,15	3,0%	687,549
2474+0,000	6,25	686,974	6,25	686,425	4,25	-2,0%	686,275	686,470	686,360	-0,11	695,209,41	8,142,147,01	2,0%	686,595
2474+0,000	6,80	686,748	6,25	685,514	4,25	-2,0%	685,364	685,628	685,449	-0,18	695,211,76	8,142,166,88	2,0%	685,684
2474+0,000	6,61	686,911	6,25	684,603	4,25	-2,0%	684,453	684,071	684,598	0,49	695,214,10	8,142,186,74	2,0%	684,773
2474+0,000	6,40	684,445	6,25	683,691	4,25	-2,0%	683,541	682,951	683,626	0,67	695,216,44	8,142,206,60	2,0%	683,861
2474+0,000	6,75	683,497	6,25	682,760	4,25	-2,0%	682,630	682,283	682,715	0,45	695,218,78	8,142,226,46	2,0%	682,950
2474+0,000	6,72	682,105	6,25	681,869	4,25	-2,0%	681,719	681,595	681,804	0,21	695,221,12	8,142,246,33	2,0%	682,039
2474+0,000	6,30	681,526	6,25	680,958	4,25	-2,0%	680,808	680,848	680,893	0,05	695,223,47	8,142,266,19	2,0%	681,128
2474+0,000	7,28	680,940	6,25	680,046	4,25	-2,0%	679,896	679,953	679,981	0,03	695,225,81	8,142,286,05	2,0%	680,216

Eixo: Eixo 01 LE	Notas de Serviço de Terraplenagem																						
Via: Ligeirão Av. Copacabana / Av. Vale das Pontas	Bordo Esquerdo											Eixo				Bordo Direito				Cidovia			
Estaca	Offset	Passivo	Bordo Esquerdo			Eixo			Bordo Direito			Cidovia											
dist (m)	coa (m)	dist (m)	coa (m)	dist (m)	i (%)	coa terrap	i (%)	Y	X	Coa vertm	coa proj	coa terreno	coa p/roj	Coa vertm	Y	i (%)	coa terrap	dist (m)	coa (m)	dist (m)	coa (m)	dist (m)	
286+0,000	6,50	679,768	6,25	679,135	4,25	-2,0%	678,985	679,090	679,070	-0,02	695,228,15	8.142,305,91	679,155	2,0%	4,25	679,305	4,75	679,305	6,75	679,305	4,75	679,305	6,75
297+0,000	6,39	678,682	6,25	678,224	4,25	-2,0%	678,074	678,204	678,159	-0,04	695,230,49	8.142,325,78	678,244	2,0%	4,25	678,394	4,75	678,394	6,75	678,394	4,75	678,394	6,75
298+0,000	6,42	677,751	6,25	677,312	4,25	-2,0%	677,162	677,092	677,247	0,14	695,232,83	8.142,345,65	677,332	2,0%	4,25	677,482	4,75	677,482	6,75	677,482	4,75	677,482	6,75
299+0,000	6,44	676,825	6,25	676,401	4,25	-2,0%	676,251	675,998	676,336	0,34	695,235,17	8.142,365,54	676,421	2,0%	4,25	676,571	4,75	676,571	6,75	676,571	4,75	676,571	6,75
300+0,000	6,28	676,017	6,25	675,490	4,25	-2,0%	675,340	675,190	675,425	0,23	695,237,52	8.142,385,36	675,510	2,0%	4,25	675,660	4,75	675,660	6,75	675,660	4,75	675,660	6,75
301+0,000	6,55	675,227	6,25	674,599	4,25	-2,0%	674,429	674,384	674,514	0,13	695,239,86	8.142,405,23	674,599	2,0%	4,25	674,749	4,75	674,749	6,75	674,749	4,75	674,749	6,75
302+0,000	6,51	674,302	6,25	673,667	4,25	-2,0%	673,517	673,679	673,602	-0,08	695,242,20	8.142,425,09	673,687	2,0%	4,25	673,837	4,75	673,837	6,75	673,837	4,75	673,837	6,75
303+0,000	6,57	673,347	6,25	672,756	4,25	-2,0%	672,606	672,755	672,691	-0,06	695,244,54	8.142,444,81	672,716	2,0%	4,25	672,926	4,75	672,926	6,75	672,926	4,75	672,926	6,75
304+0,000	6,58	672,506	6,25	671,845	4,25	-2,0%	671,695	671,737	671,780	0,04	695,246,88	8.142,464,81	671,865	2,0%	4,25	672,015	4,75	672,015	6,75	672,015	4,75	672,015	6,75
305+0,000	6,52	671,708	6,25	670,933	4,25	-2,0%	670,783	670,699	670,868	0,17	695,249,22	8.142,484,68	670,953	2,0%	4,25	671,103	4,75	671,103	6,75	671,103	4,75	671,103	6,75
306+0,000	8,06	671,177	6,25	669,105	4,25	-1,5%	669,928	669,938	669,959	0,03	695,251,57	8.142,504,54	670,023	1,5%	4,25	670,173	4,75	670,173	6,75	669,510	4,75	669,510	6,75
307+0,000	8,23	670,466	6,25	669,170	4,25	-1,0%	669,020	669,185	669,190	0,03	695,253,93	8.142,524,41	669,360	4,0%	4,25	669,510	4,75	669,510	6,75	669,510	4,75	669,510	6,75
308+0,000	6,50	669,097	6,25	668,630	4,25	-4,0%	668,480	668,658	668,650	-0,01	695,256,22	8.142,544,21	668,720	4,0%	4,25	668,970	4,75	668,970	6,75	668,970	4,75	668,970	6,75
309+0,000	8,08	667,732	6,25	666,317	4,25	-4,0%	666,167	667,361	668,337	0,98	695,262,75	8.142,563,21	668,530	4,0%	4,25	668,657	4,75	668,657	6,75	668,657	4,75	668,657	6,75
310+0,000	5,08	666,980	6,25	666,273	4,25	-3,0%	666,123	666,813	668,250	1,44	695,272,73	8.142,582,50	668,378	3,0%	4,25	668,528	4,75	668,528	6,75	668,528	4,75	668,528	6,75
311+0,000	10,97	665,719	6,25	668,315	4,25	-2,0%	668,165	663,930	668,250	4,32	695,285,44	8.142,601,21	668,335	2,0%	4,25	668,485	4,75	668,485	6,75	668,485	4,75	668,485	6,75
312+0,000	9,17	666,918	6,25	668,505	4,25	-2,0%	668,165	668,250	668,250	0,17	695,298,35	8.142,621,31	668,335	2,0%	4,25	668,485	4,75	668,485	6,75	668,485	4,75	668,485	6,75
313+0,000	7,43	668,265	6,25	668,505	4,25	-2,0%	668,355	668,268	668,440	0,19	695,311,28	8.142,626,48	668,525	2,0%	4,25	668,675	4,75	668,675	6,75	668,675	4,75	668,675	6,75
314+0,000	6,50	669,980	6,25	669,347	4,25	-2,0%	669,197	669,976	669,282	-0,69	695,324,17	8.142,641,75	669,367	2,0%	4,25	669,517	4,75	669,517	6,75	669,517	4,75	669,517	6,75
315+0,000	7,16	671,717	6,25	670,864	4,25	-2,0%	670,714	671,678	670,799	-0,88	695,337,49	8.142,656,67	670,884	2,0%	4,25	671,034	4,75	671,034	6,75	671,034	4,75	671,034	6,75
316+0,000	6,41	673,466	6,25	672,864	4,25	-2,0%	672,714	673,378	672,799	-0,58	695,351,23	8.142,671,20	672,884	2,0%	4,25	673,084	4,75	673,084	6,75	673,084	4,75	673,084	6,75
317+0,000	6,46	675,595	6,25	674,886	4,25	-2,0%	674,736	675,419	674,821	-0,60	695,364,57	8.142,685,73	674,906	2,0%	4,25	675,056	4,75	675,056	6,75	675,056	4,75	675,056	6,75
318+0,000	6,77	677,631	6,25	676,908	4,25	-2,0%	676,758	677,545	676,843	-0,70	695,378,71	8.142,700,27	676,928	2,0%	4,25	677,078	4,75	677,078	6,75	677,078	4,75	677,078	6,75
319+0,000	7,09	679,761	6,25	678,930	4,25	-2,0%	678,780	679,671	678,865	-0,81	695,392,45	8.142,714,80	678,950	2,0%	4,25	679,100	4,75	679,100	6,75	679,100	4,75	679,100	6,75
320+0,000	7,51	681,921	6,25	680,952	4,25	-2,0%	680,802	681,832	680,887	-0,95	695,406,19	8.142,729,34	680,972	2,0%	4,25	681,122	4,75	681,122	6,75	681,122	4,75	681,122	6,75
321+0,000	8,02	684,111	6,25	682,972	4,25	-2,0%	682,822	684,030	682,907	-1,12	695,419,33	8.142,743,87	682,992	2,0%	4,25	683,242	4,75	683,242	6,75	683,242	4,75	683,242	6,75
322+0,000	8,59	686,015	6,25	684,686	4,25	-2,0%	684,536	685,989	684,621	-1,28	695,433,67	8.142,758,40	684,706	2,0%	4,25	684,856	4,75	684,856	6,75	684,856	4,75	684,856	6,75
323+0,000	6,26	686,432	6,25	685,886	4,25	-2,0%	685,736	686,348	685,821	-0,53	695,447,41	8.142,772,94	685,906	2,0%	4,25	686,056	4,75	686,056	6,75	686,056	4,75	686,056	6,75
324+0,000	6,48	687,205	6,25	686,577	4,25	-2,0%	686,427	687,113	686,512	-0,60	695,461,13	8.142,787,47	686,597	2,0%	4,25	686,747	4,75	686,747	6,75	686,747	4,75	686,747	6,75
325+0,000	6,82	687,797	6,25	687,059	4,25	-2,0%	686,909	686,950	686,944	-0,66	695,474,89	8.142,802,00	687,019	2,0%	4,25	687,229	4,75	687,229	6,75	687,229	4,75	687,229	6,75
326+0,000	6,77	688,264	6,25	687,541	4,25	-2,0%	687,391	688,103	687,476	-0,63	695,486,63	8.142,816,54	687,561	2,0%	4,25	687,711	4,75	687,711	6,75	687,711	4,75	687,711	6,75

Notas de Serviço de Terraplenagem														
Eixo: Eixo 02 LD														
Via: Ligação Av. Copacabana / Av. Vale das Pombas														
Estaca	Canleiro		Bordo Esquerdo			Eixo		Bordo Direito			Passado		Offset	
	dist (m)	coia (m)	dist (m)	(%)	coia terrapi	coia terreno	coia proj	coia verno	X	Y	coia terrapi	(%)	dist (m)	coia (m)
165+0.000	4.75	750.244	4.25	2.0%	750.094	750.504	750.009	-0.50	693.986.09	8.140.563.38	743.924	-2.0%	750.074	6.25
166+0.000	4.75	749.531	4.25	2.0%	749.441	750.039	749.356	-0.68	694.005.93	8.140.572.26	743.271	-2.0%	749.421	6.25
167+0.000	4.75	748.937	4.25	2.0%	748.787	749.269	748.702	-0.57	694.022.00	8.140.580.42	743.617	-2.0%	748.767	6.25
168+0.000	4.75	748.284	4.25	2.0%	748.134	748.460	748.049	-0.41	694.033.68	8.140.586.37	743.964	-2.0%	748.114	6.25
169+0.000	4.75	747.674	4.25	3.0%	747.524	747.740	747.396	-0.34	694.043.30	8.140.613.81	747.269	-3.0%	747.419	6.25
170+0.000	4.75	747.020	4.25	3.0%	746.870	747.251	746.742	-0.51	694.055.20	8.140.629.07	746.515	-3.0%	747.169	6.53
171+0.000	4.75	746.367	4.25	3.0%	746.217	746.542	746.089	-0.45	694.066.03	8.140.646.44	745.912	-3.0%	746.512	6.56
172+0.000	4.75	745.726	4.25	3.0%	745.576	745.340	745.448	0.11	694.071.86	8.140.665.53	745.321	-3.0%	745.471	6.25
173+0.000	4.75	745.205	4.25	3.0%	745.055	744.741	744.927	0.19	694.073.42	8.140.685.43	744.800	-3.0%	744.950	6.25
174+0.000	4.75	744.829	4.25	3.0%	744.679	744.714	744.551	0.16	694.070.62	8.140.705.20	744.424	-3.0%	744.574	6.25
175+0.000	4.75	744.556	4.25	2.0%	744.406	744.409	744.321	-0.09	694.065.15	8.140.724.44	744.236	-2.0%	744.386	6.85
176+0.000	4.75	744.458	4.25	2.0%	744.308	744.224	744.223	0.00	694.059.65	8.140.743.66	744.138	-2.0%	744.288	6.25
177+0.000	4.75	744.385	4.25	2.0%	744.235	744.101	744.150	0.05	694.054.15	8.140.762.89	744.065	-2.0%	744.215	6.25
178+0.000	4.75	744.312	4.25	2.0%	744.162	744.022	744.077	0.05	694.048.65	8.140.782.12	743.992	-2.0%	744.142	6.25
179+0.000	4.75	744.239	4.25	2.0%	744.089	743.927	744.004	0.08	694.043.14	8.140.801.35	743.919	-2.0%	744.069	6.25
180+0.000	4.75	744.165	4.25	2.0%	744.015	743.792	743.930	0.14	694.037.64	8.140.820.58	743.845	-2.0%	743.995	6.25
181+0.000	4.75	744.092	4.25	2.0%	743.942	743.758	743.857	0.10	694.032.14	8.140.839.81	743.772	-2.0%	743.922	6.25
182+0.000	4.75	744.019	4.25	2.0%	743.869	743.724	743.784	0.06	694.026.64	8.140.859.03	743.699	-2.0%	743.849	6.25
183+0.000	4.75	743.946	4.25	2.0%	743.796	743.701	743.711	0.01	694.021.14	8.140.878.26	743.626	-2.0%	743.776	6.25
184+0.000	4.75	743.873	4.25	2.0%	743.723	743.638	743.653	0.01	694.015.64	8.140.897.49	743.553	-2.0%	743.703	6.25
185+0.000	4.75	743.800	4.25	2.0%	743.650	743.583	743.565	-0.02	694.010.13	8.140.916.72	743.480	-2.0%	743.630	6.25
186+0.000	4.75	743.727	4.25	2.0%	743.577	743.515	743.492	0.18	694.004.63	8.140.935.95	743.407	-2.0%	743.557	6.25
187+0.000	4.75	743.654	4.25	2.0%	743.504	743.472	743.419	0.21	693.998.13	8.140.955.18	743.334	-2.0%	743.484	6.25
188+0.000	4.75	743.580	4.25	2.0%	743.430	743.386	743.345	0.16	693.993.63	8.140.974.41	743.260	-2.0%	743.410	6.25
189+0.000	4.75	743.507	4.25	2.0%	743.357	743.313	743.272	0.08	693.988.13	8.140.993.63	743.187	-2.0%	743.337	6.25
190+0.000	4.75	743.434	4.25	2.0%	743.284	743.253	743.199	-0.05	693.982.63	8.141.012.86	743.114	-2.0%	743.264	6.25
191+0.000	4.75	743.361	4.25	2.0%	743.211	743.232	743.126	-0.17	693.977.13	8.141.032.09	743.041	-2.0%	743.191	6.25
192+0.000	4.75	743.288	4.25	2.0%	743.138	743.233	743.053	-0.18	693.971.62	8.141.051.32	742.968	-2.0%	743.118	6.25
193+0.000	4.75	743.215	4.25	2.0%	743.065	743.350	742.980	-0.37	693.966.12	8.141.070.55	742.895	-2.0%	743.045	6.25
194+0.000	4.75	743.142	4.25	2.0%	742.992	743.324	742.907	0.42	693.961.62	8.141.089.78	742.822	-2.0%	742.972	6.25
195+0.000	4.75	743.054	4.25	2.0%	742.904	743.104	742.819	0.29	693.955.12	8.141.109.00	742.734	-2.0%	742.884	6.25
196+0.000	4.75	742.960	4.25	2.0%	742.810	742.775	742.695	-0.15	693.949.62	8.141.128.23	742.540	-2.0%	742.690	6.25
197+0.000	4.75	742.843	4.25	2.0%	742.693	742.282	742.308	0.03	693.944.12	8.141.147.46	742.223	-2.0%	742.373	6.25
198+0.000	4.75	742.710	4.25	2.0%	742.560	741.846	741.868	0.02	693.938.62	8.141.166.69	741.783	-2.0%	741.933	6.25
199+0.000	4.75	742.584	4.25	2.0%	742.430	741.609	741.395	-0.30	693.933.11	8.141.185.92	741.720	-2.0%	741.370	6.25
200+0.000	4.75	742.454	4.25	2.0%	742.304	741.059	740.619	-0.44	693.927.61	8.141.205.15	740.534	-2.0%	740.684	6.25
201+0.000	4.75	742.324	4.25	2.0%	742.174	740.273	739.825	-0.45	693.922.48	8.141.224.47	739.740	-2.0%	739.890	6.25
202+0.000	4.75	739.248	4.25	2.0%	739.098	738.333	739.013	0.32	693.918.60	8.141.244.09	738.928	-2.0%	739.078	6.25
203+0.000	4.75	738.437	4.25	2.0%	738.287	738.234	738.202	-0.03	693.913.97	8.141.263.31	738.117	-2.0%	738.267	6.25
204+0.000	4.75	737.626	4.25	2.0%	737.476	737.426	737.391	0.13	693.913.66	8.141.283.78	737.306	-2.0%	737.456	6.25
205+0.000	4.75	736.815	4.25	2.0%	736.665	736.426	736.580	0.15	693.913.06	8.141.303.63	736.495	-2.0%	736.645	6.25
206+0.000	4.75	736.004	4.25	2.0%	735.854	735.737	735.769	0.03	693.919.04	8.141.322.57	735.694	-2.0%	735.834	6.25
207+0.000	4.75	735.192	4.25	2.0%	735.042	735.031	734.957	-0.07	693.937.08	8.141.356.99	734.872	-2.0%	735.022	6.25
208+0.000	4.75	734.381	4.25	2.0%	734.231	734.146	734.146	-0.46	693.950.93	8.141.343.67	734.061	-2.0%	734.271	6.25
209+0.000	4.75	733.570	4.25	2.0%	733.420	733.392	733.335	0.34	693.965.81	8.141.350.27	733.400	-2.0%	733.400	6.25
210+0.000	4.75	732.759	4.25	2.0%	732.609	732.971	732.524	-0.45	693.986.69	8.141.356.86	733.459	-2.0%	732.589	6.25
211+0.000	4.75	731.948	4.25	2.0%	731.798	732.674	731.713	-0.96	694.007.57	8.141.363.46	731.658	-2.0%	731.778	6.25
212+0.000	4.75	731.136	4.25	2.0%	730.986	731.927	730.901	-1.03	694.026.45	8.141.370.06	730.816	-2.0%	730.966	6.25
213+0.000	4.75	730.322	4.25	2.0%	730.172	730.962	730.087	-0.88	694.045.33	8.141.376.65	730.002	-2.0%	730.152	6.25
214+0.000	4.75	729.452	4.25	2.0%	729.302	730.081	729.217	-0.86	694.064.21	8.141.383.25	729.132	-2.0%	729.282	6.25
215+0.000	4.75	728.599	4.25	2.0%	728.359	728.292	728.274	-1.02	694.083.09	8.141.389.85	728.139	-2.0%	728.339	6.25
216+0.000	4.75	727.493	4.25	2.0%	727.343	727.258	727.258	-1.06	694.101.94	8.141.396.54	727.173	-2.0%	727.323	6.25
217+0.000	4.75	726.403	4.25	2.0%	726.253	727.126	726.168	-0.96	694.120.40	8.141.404.22	726.083	-2.0%	726.233	6.25
218+0.000	4.75	725.241	4.25	2.0%	725.091	725.155	725.006	-0.15	694.138.34	8.141.413.06	724.921	-2.0%	725.071	6.25
219+0.000	4.75	724.089	4.25	2.0%	723.939	724.046	723.951	-0.11	694.156.28	8.141.421.90	723.864	-2.0%	723.910	6.25
220+0.000	4.75	722.937	4.25	2.0%	722.787	722.904	722.819	-0.17	694.174.22	8.141.430.74	722.744	-2.0%	722.894	6.25
221+0.000	4.75	721.785	4.25	2.0%	721.635	721.752	721.660	-0.23	694.192.16	8.141.439.58	721.592	-2.0%	721.742	6.25
222+0.000	4.75	720.633	4.25	2.0%	720.483	720.600	720.518	-0.29	694.210.10	8.141.448.42	720.440	-2.0%	720.590	6.25
223+0.000	4.75	719.481	4.25	2.0%	719.331	719.448	719.376	-0.35	694.228.04	8.141.457.26	719.288	-2.0%	719.438	6.25
224+0.000	4.75	718.329	4.25	2.0%	718.179	718.296	718.224	-0.41	694.245.98	8.141.466.10	718.136	-2.0%	718.286	6.25
225+0.000	4.75	717.177	4.25	2.0%	717.027	717.144	717.072	-0.47	694.263.92	8.141.474.94	716.980	-2.0%	717.130	6.25
226+0.000	4.75	716.025	4.25	2.0%	715.875	715.992	715.918	-0.53	694.281.86	8.141.483.78	715.832	-2.0%	715.982	6.25
227+0.000	4.75	714.873	4.25	2.0%	714.723	714.840	714.768	-0.59	694.300.80	8.141.492.62	714.680	-2.0%	714.830	6.25
228+0.000	4.75	713.721	4.25	2.0%	713.571	713.688	713.614	-0.65	694.318.74	8.141.501.46	713.580	-2.0%	713.630	6.25
229+0.000	4.75	712.569	4.25	2.0%	712.419	712.536	712.464	-0.71	694.337.68	8.141.510.30	712.428	-2.0%	712.478	6.25
230+0.000	4.75	711.417	4.25	2.0%	711.267	711.384	711.310	-0.77	694.356.62	8.141.519.14	711.276	-2.0%	711.326	6.2



Notas de Serviço de Terraplenagem													
Eixo 02 LD													
Ligação Av. Copacabana / Av. Vale das Pombas													
Estaca	Canleiro		Bordo Esquerdo		Bordo Direito		Eixo		Passado		Offset		
	dist (m)	coia (m)	dist (m)	i (%)	coia (m)	i (%)	coia (m)	i (%)	coia (m)	i (%)	coia (m)	i (%)	dist (m)
21940,000	4,75	724,008	4,25	2,0%	723,773	-2,0%	723,773	-2,0%	723,838	-2,0%	724,637	-2,0%	724,637
22040,000	4,75	722,758	4,25	2,0%	722,608	-2,0%	722,608	-2,0%	722,588	-2,0%	722,834	-2,0%	722,834
22140,000	4,75	721,507	4,25	2,0%	720,503	-2,0%	720,503	-2,0%	721,187	-2,0%	721,337	-2,0%	721,337
22240,000	4,75	720,256	4,25	2,0%	720,106	-2,0%	720,106	-2,0%	720,936	-2,0%	721,438	-2,0%	721,438
22340,000	4,75	719,006	4,25	2,0%	718,856	-2,0%	718,856	-2,0%	718,349	-2,0%	718,836	-2,0%	718,836
22440,000	4,75	717,755	4,25	2,0%	717,605	-2,0%	717,605	-2,0%	716,245	-2,0%	717,585	-2,0%	717,585
22540,000	4,75	716,505	4,25	2,0%	716,355	-2,0%	716,355	-2,0%	715,104	-2,0%	716,385	-2,0%	716,385
22640,000	4,75	715,254	4,25	2,0%	715,104	-2,0%	715,104	-2,0%	714,934	-2,0%	715,084	-2,0%	715,084
22740,000	4,75	714,003	4,25	2,0%	713,853	-2,0%	713,853	-2,0%	713,683	-2,0%	713,833	-2,0%	713,833
22840,000	4,75	712,753	4,25	2,0%	712,603	-2,0%	712,603	-2,0%	712,433	-2,0%	712,583	-2,0%	712,583
22940,000	4,75	711,502	4,25	2,0%	711,352	-2,0%	711,352	-2,0%	711,182	-2,0%	711,332	-2,0%	711,332
23040,000	4,75	710,252	4,25	2,0%	710,102	-2,0%	710,102	-2,0%	709,932	-2,0%	710,082	-2,0%	710,082
23140,000	4,75	709,001	4,25	2,0%	708,851	-2,0%	708,851	-2,0%	708,681	-2,0%	708,831	-2,0%	708,831
23240,000	4,75	707,751	4,25	2,0%	707,601	-2,0%	707,601	-2,0%	707,431	-2,0%	707,581	-2,0%	707,581
23340,000	4,75	706,500	4,25	2,0%	706,350	-2,0%	706,350	-2,0%	706,180	-2,0%	706,330	-2,0%	706,330
23440,000	4,75	705,249	4,25	2,0%	705,099	-2,0%	705,099	-2,0%	704,929	-2,0%	705,079	-2,0%	705,079
23540,000	4,75	704,001	4,25	2,0%	703,851	-2,0%	703,851	-2,0%	703,681	-2,0%	703,831	-2,0%	703,831
23640,000	4,75	702,753	4,25	2,0%	702,603	-2,0%	702,603	-2,0%	702,433	-2,0%	702,583	-2,0%	702,583
23740,000	4,75	701,504	4,25	2,0%	701,354	-2,0%	701,354	-2,0%	701,184	-2,0%	701,334	-2,0%	701,334
23840,000	4,75	700,255	4,25	2,0%	700,105	-2,0%	700,105	-2,0%	700,275	-2,0%	700,375	-2,0%	700,375
23940,000	4,75	699,006	4,25	2,0%	698,856	-2,0%	698,856	-2,0%	698,686	-2,0%	698,836	-2,0%	698,836
24040,000	4,75	697,757	4,25	2,0%	697,607	-2,0%	697,607	-2,0%	697,437	-2,0%	697,587	-2,0%	697,587
24140,000	4,75	696,508	4,25	2,0%	696,358	-2,0%	696,358	-2,0%	696,188	-2,0%	696,338	-2,0%	696,338
24240,000	4,75	695,259	4,25	2,0%	695,109	-2,0%	695,109	-2,0%	694,939	-2,0%	695,089	-2,0%	695,089
24340,000	4,75	694,010	4,25	2,0%	693,860	-2,0%	693,860	-2,0%	693,690	-2,0%	693,840	-2,0%	693,840
24440,000	4,75	692,761	4,25	2,0%	692,611	-2,0%	692,611	-2,0%	692,441	-2,0%	692,591	-2,0%	692,591
24540,000	4,75	691,512	4,25	2,0%	691,362	-2,0%	691,362	-2,0%	691,192	-2,0%	691,342	-2,0%	691,342
24640,000	4,75	690,263	4,25	2,0%	690,113	-2,0%	690,113	-2,0%	689,943	-2,0%	690,093	-2,0%	690,093
24740,000	4,75	689,014	4,25	2,0%	688,864	-2,0%	688,864	-2,0%	688,694	-2,0%	688,844	-2,0%	688,844
24840,000	4,75	687,765	4,25	2,0%	687,615	-2,0%	687,615	-2,0%	687,445	-2,0%	687,595	-2,0%	687,595
24940,000	4,75	686,516	4,25	2,0%	686,366	-2,0%	686,366	-2,0%	686,196	-2,0%	686,346	-2,0%	686,346
25040,000	4,75	685,267	4,25	2,0%	685,117	-2,0%	685,117	-2,0%	684,947	-2,0%	685,097	-2,0%	685,097
25140,000	4,75	684,018	4,25	2,0%	683,868	-2,0%	683,868	-2,0%	683,698	-2,0%	683,848	-2,0%	683,848
25240,000	4,75	682,769	4,25	2,0%	682,619	-2,0%	682,619	-2,0%	682,449	-2,0%	682,599	-2,0%	682,599
25340,000	4,75	681,520	4,25	2,0%	681,370	-2,0%	681,370	-2,0%	681,200	-2,0%	681,350	-2,0%	681,350
25440,000	4,75	680,271	4,25	2,0%	680,121	-2,0%	680,121	-2,0%	679,951	-2,0%	680,101	-2,0%	680,101
25540,000	4,75	679,022	4,25	2,0%	678,872	-2,0%	678,872	-2,0%	678,702	-2,0%	678,852	-2,0%	678,852
25640,000	4,75	677,773	4,25	2,0%	677,623	-2,0%	677,623	-2,0%	677,453	-2,0%	677,603	-2,0%	677,603
25740,000	4,75	676,524	4,25	2,0%	676,374	-2,0%	676,374	-2,0%	676,204	-2,0%	676,354	-2,0%	676,354
25840,000	4,75	675,275	4,25	2,0%	675,125	-2,0%	675,125	-2,0%	674,955	-2,0%	675,105	-2,0%	675,105
25940,000	4,75	674,026	4,25	2,0%	673,876	-2,0%	673,876	-2,0%	673,706	-2,0%	673,856	-2,0%	673,856
26040,000	4,75	672,777	4,25	2,0%	672,627	-2,0%	672,627	-2,0%	672,457	-2,0%	672,607	-2,0%	672,607
26140,000	4,75	671,528	4,25	2,0%	671,378	-2,0%	671,378	-2,0%	671,208	-2,0%	671,358	-2,0%	671,358
26240,000	4,75	670,279	4,25	2,0%	670,129	-2,0%	670,129	-2,0%	669,959	-2,0%	670,109	-2,0%	670,109
26340,000	4,75	669,030	4,25	2,0%	668,880	-2,0%	668,880	-2,0%	668,710	-2,0%	668,860	-2,0%	668,860
26440,000	4,75	667,781	4,25	2,0%	667,631	-2,0%	667,631	-2,0%	667,461	-2,0%	667,611	-2,0%	667,611
26540,000	4,75	666,532	4,25	2,0%	666,382	-2,0%	666,382	-2,0%	666,212	-2,0%	666,362	-2,0%	666,362
26640,000	4,75	665,283	4,25	2,0%	665,133	-2,0%	665,133	-2,0%	664,963	-2,0%	665,113	-2,0%	665,113
26740,000	4,75	664,034	4,25	2,0%	663,884	-2,0%	663,884	-2,0%	663,714	-2,0%	663,864	-2,0%	663,864
26840,000	4,75	662,785	4,25	2,0%	662,635	-2,0%	662,635	-2,0%	662,465	-2,0%	662,615	-2,0%	662,615
26940,000	4,75	661,536	4,25	2,0%	661,386	-2,0%	661,386	-2,0%	661,216	-2,0%	661,366	-2,0%	661,366
27040,000	4,75	660,287	4,25	2,0%	660,137	-2,0%	660,137	-2,0%	659,967	-2,0%	660,117	-2,0%	660,117
27140,000	4,75	659,038	4,25	2,0%	658,888	-2,0%	658,888	-2,0%	658,718	-2,0%	658,868	-2,0%	658,868
27240,000	4,75	657,789	4,25	2,0%	657,639	-2,0%	657,639	-2,0%	657,469	-2,0%	657,619	-2,0%	657,619
27340,000	4,75	656,540	4,25	2,0%	656,390	-2,0%	656,390	-2,0%	656,220	-2,0%	656,370	-2,0%	656,370
27440,000	4,75	655,291	4,25	2,0%	655,141	-2,0%	655,141	-2,0%	654,971	-2,0%	655,121	-2,0%	655,121
27540,000	4,75	654,042	4,25	2,0%	653,892	-2,0%	653,892	-2,0%	653,722	-2,0%	653,872	-2,0%	653,872
27640,000	4,75	652,793	4,25	2,0%	652,643	-2,0%	652,643	-2,0%	652,473	-2,0%	652,623	-2,0%	652,623
27740,000	4,75	651,544	4,25	2,0%	651,394	-2,0%	651,394	-2,0%	651,224	-2,0%	651,374	-2,0%	651,374

Eixo:	Notas de Serviço de Terraplenagem															
Eixo 02 LD																
Via:	Ligação Av. Copacabana / Av. Vale das Pombas															
Estaca	Canleiro			Bordo Esquerdo			Eixo			Bordo Direito			Passado		Offset	
	dist (m)	coa (m)	dist (m)	(%)	coa terrap	coa proj	coa vgrm	X	Y	(%)	dist (m)	coa (m)	dist (m)	coa (m)		
27340,000	4,75	694,189	4,25	2,0%	694,039	695,268	693,954	-1,31	695,025,27	8,141,968,44	-2,0%	4,25	694,019	6,25	695,627	9,43
27400,000	4,75	693,838	4,25	2,0%	693,688	694,939	693,603	-1,34	695,043,14	8,141,977,42	-2,0%	4,25	693,668	6,25	695,295	9,48
27500,000	4,75	693,488	4,25	2,0%	693,338	694,613	693,253	-1,36	695,060,98	8,141,986,46	-2,0%	4,25	693,318	6,25	695,023	9,72
27600,000	4,75	693,138	4,25	2,0%	692,988	694,311	692,903	-1,41	695,078,66	8,141,995,82	-2,0%	4,25	692,968	6,25	694,736	9,91
27700,000	4,75	692,787	4,25	2,0%	692,637	694,033	692,552	-1,48	695,096,14	8,142,005,52	-2,0%	4,25	692,617	6,25	694,460	10,13
27800,000	4,75	692,437	4,25	2,0%	692,287	693,653	692,202	-1,49	695,113,47	8,142,015,52	-2,0%	4,25	692,267	6,25	694,124	10,17
27900,000	4,75	692,085	4,25	2,0%	691,935	693,389	691,850	-1,54	695,130,77	8,142,025,54	-2,0%	4,25	691,915	6,25	693,783	10,21
28000,000	4,75	691,673	4,25	1,5%	691,523	692,967	691,438	-1,63	695,148,08	8,142,035,56	-1,5%	4,25	691,503	6,25	693,386	10,25
28100,000	4,75	691,147	4,25	1,5%	690,997	692,574	690,933	-1,64	695,165,39	8,142,045,59	-1,5%	4,25	691,019	6,25	693,012	10,64
28200,000	4,75	690,657	4,25	4,0%	690,507	692,179	690,337	-1,84	695,182,29	8,142,056,24	-4,0%	4,25	690,317	6,25	692,603	11,20
28300,000	4,75	689,970	4,25	4,0%	689,820	691,260	689,650	-1,61	695,196,74	8,142,070,02	-4,0%	4,25	689,630	6,25	692,137	10,97
28400,000	4,75	689,130	4,25	4,0%	689,040	690,050	688,870	-1,18	695,207,85	8,142,086,60	-4,0%	4,25	688,850	6,25	690,493	9,28
28500,000	4,75	688,320	4,25	4,0%	688,170	688,904	688,000	-0,90	695,215,10	8,142,105,20	-4,0%	4,25	687,980	6,25	689,083	7,65
28600,000	4,75	687,377	4,25	3,0%	687,227	687,888	687,099	-0,79	695,225,39	8,142,124,90	-3,0%	4,25	687,122	6,25	688,002	7,11
28700,000	4,75	686,412	4,25	1,5%	686,262	686,850	686,139	-0,65	695,230,73	8,142,144,77	-1,5%	4,25	686,284	6,25	686,961	6,69
28800,000	4,75	685,532	4,25	2,0%	685,383	685,888	685,298	-0,59	695,235,07	8,142,164,63	-2,0%	4,25	685,363	6,25	685,978	6,30
28900,000	4,75	684,632	4,25	2,0%	684,482	684,862	684,397	-0,47	695,235,41	8,142,184,49	-2,0%	4,25	684,462	6,25	685,495	7,58
29000,000	4,75	683,731	4,25	2,0%	683,581	684,084	683,496	-0,59	695,227,75	8,142,204,35	-2,0%	4,25	683,561	6,25	684,697	8,01
29100,000	4,75	682,830	4,25	2,0%	682,680	683,407	682,595	-0,81	695,230,10	8,142,224,22	-2,0%	4,25	682,660	6,25	683,682	7,67
29200,000	4,75	681,929	4,25	2,0%	681,779	682,438	681,694	-0,74	695,232,44	8,142,244,08	-2,0%	4,25	681,759	6,25	682,959	7,11
29300,000	4,75	681,028	4,25	2,0%	680,878	681,230	680,793	-0,44	695,234,78	8,142,263,94	-2,0%	4,25	680,858	6,25	681,270	6,46
29400,000	4,75	680,127	4,25	2,0%	679,977	680,592	679,892	-0,70	695,237,12	8,142,283,80	-2,0%	4,25	679,957	6,25	680,365	6,47
29500,000	4,75	679,227	4,25	2,0%	679,077	679,321	678,992	-0,33	695,239,46	8,142,303,67	-2,0%	4,25	679,057	6,25	679,861	7,01
29600,000	4,75	678,326	4,25	2,0%	678,176	678,391	678,091	-0,65	695,241,80	8,142,323,53	-2,0%	4,25	678,156	6,25	678,659	6,32
29700,000	4,75	677,425	4,25	2,0%	677,275	677,745	677,190	-0,56	695,244,15	8,142,343,39	-2,0%	4,25	677,255	6,25	677,677	6,44
29800,000	4,75	676,524	4,25	2,0%	676,374	676,636	676,289	-0,35	695,246,49	8,142,363,25	-2,0%	4,25	676,354	6,25	676,695	6,56
29900,000	4,75	675,623	4,25	2,0%	675,473	675,794	675,388	0,09	695,248,83	8,142,383,12	-2,0%	4,25	675,453	6,25	675,839	6,50
30000,000	4,75	674,722	4,25	2,0%	674,572	674,735	674,487	-0,25	695,251,17	8,142,402,98	-2,0%	4,25	674,552	6,25	675,930	6,51
30100,000	4,75	673,822	4,25	2,0%	673,672	673,820	673,587	-0,23	695,253,51	8,142,422,84	-2,0%	4,25	673,652	6,25	674,974	6,59
30200,000	4,75	672,921	4,25	2,0%	672,771	672,941	672,686	-0,36	695,255,86	8,142,442,70	-2,0%	4,25	672,751	6,25	674,962	6,76
30300,000	4,75	672,020	4,25	2,0%	671,870	671,930	671,785	-0,14	695,258,20	8,142,462,56	-2,0%	4,25	671,850	6,25	671,814	7,13
30400,000	4,75	671,119	4,25	2,0%	670,969	670,643	670,884	0,24	695,260,54	8,142,482,43	-2,0%	4,25	670,949	6,25	670,286	8,14
30500,000	4,75	670,219	4,25	2,0%	670,069	670,012	669,984	-0,03	695,262,88	8,142,502,29	-2,0%	4,25	670,049	6,25	669,706	7,59
30600,000	4,75	669,318	4,25	2,0%	669,268	669,039	669,213	0,17	695,265,22	8,142,522,15	-2,0%	4,25	669,278	6,25	669,761	7,86
30700,000	4,75	668,417	4,25	4,0%	668,337	668,038	668,567	0,63	695,267,56	8,142,542,02	-4,0%	4,25	668,347	6,25	669,326	9,19
30800,000	4,75	667,516	4,25	4,0%	667,436	667,175	668,346	1,17	695,270,90	8,142,561,90	-4,0%	4,25	667,406	6,25	669,373	9,97
30900,000	4,75	666,615	4,25	4,0%	666,535	666,250	668,250	1,69	695,284,92	8,142,581,77	-4,0%	4,25	666,535	6,25	668,880	10,73
31000,000	4,75	665,714	4,25	4,0%	665,634	665,349	668,250	1,69	695,289,83	8,142,601,64	-4,0%	4,25	665,634	6,25	668,434	10,73
31100,000	4,75	664,813	4,25	2,0%	664,733	664,448	668,252	0,69	695,300,65	8,142,621,51	-2,0%	4,25	664,733	6,25	667,960	14,25
31200,000	4,75	663,912	4,25	2,0%	663,832	663,547	668,436	-0,10	695,306,56	8,142,641,38	-2,0%	4,25	663,832	6,25	668,061	6,84
31300,000	4,75	663,011	4,25	2,0%	662,931	662,646	669,917	-0,29	695,312,47	8,142,661,25	-2,0%	4,25	662,931	6,25	667,142	6,48
31400,000	4,75	662,110	4,25	2,0%	662,030	661,745	671,381	-0,35	695,318,38	8,142,681,12	-2,0%	4,25	662,030	6,25	667,186	6,41
31500,000	4,75	661,209	4,25	2,0%	661,129	660,844	673,605	-0,25	695,324,29	8,142,701,00	-2,0%	4,25	661,129	6,25	667,283	6,40
31600,000	4,75	660,308	4,25	2,0%	660,228	660,012	675,338	-0,43	695,330,20	8,142,720,87	-2,0%	4,25	660,228	6,25	667,384	6,44
31700,000	4,75	659,407	4,25	2,0%	659,327	659,111	677,316	-0,32	695,336,11	8,142,740,75	-2,0%	4,25	659,327	6,25	667,481	6,42
31800,000	4,75	658,506	4,25	2,0%	658,426	658,210	677,316	-0,32	695,342,02	8,142,760,62	-2,0%	4,25	658,426	6,25	667,581	6,42
31900,000	4,75	657,605	4,25	2,0%	657,525	657,309	677,316	-0,32	695,348,93	8,142,780,50	-2,0%	4,25	657,525	6,25	667,681	6,42
32000,000	4,75	656,704	4,25	2,0%	656,624	656,408	677,316	-0,32	695,354,84	8,142,800,37	-2,0%	4,25	656,624	6,25	667,781	6,42
32100,000	4,75	655,803	4,25	2,0%	655,723	655,507	677,316	-0,32	695,360,75	8,142,820,25	-2,0%	4,25	655,723	6,25	667,881	6,42
32200,000	4,75	654,902	4,25	2,0%	654,822	654,606	677,316	-0,32	695,366,66	8,142,840,12	-2,0%	4,25	654,822	6,25	667,981	6,42
32300,000	4,75	654,001	4,25	2,0%	653,921	653,705	677,316	-0,32	695,372,57	8,142,860,00	-2,0%	4,25	653,921	6,25	668,081	6,42
32400,000	4,75	653,100	4,25	2,0%	653,020	652,804	677,316	-0,32	695,378,48	8,142,879,87	-2,0%	4,25	653,020	6,25	668,181	6,42
32500,000	4,75	652,199	4,25	2,0%	652,119	651,903	677,316	-0,32	695,384,39	8,142,899,75	-2,0%	4,25	652,119	6,25	668,281	6,42
32600,000	4,75	651,298	4,25	2,0%	651,218	651,002	677,316	-0,32	695,390,30	8,142,919,62	-2,0%	4,25	651,218	6,25	668,381	6,42
32700,000	4,75	650,397	4,25	2,0%	650,317	650,101	677,316	-0,32	695,396,21	8,142,939,50	-2,0%	4,25	650,317	6,25	668,481	6,42
32800,000	4,75	649,496	4,25	2,0%	649,416	649,200	677,316	-0,32	695,402,12	8,142,959,37	-2,0%	4,25	649,416	6,25	668,581	6,42
32900,000	4,75	648,595	4,25	2,0%	648,515	648,299	677,316	-0,32	695,408,03	8,142,979,25	-2,0%	4,25	648,515	6,25	668,681</	

## **4 TERMO DE ENCERRAMENTO**

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O presente volume denominado Volume 03A – Notas de Serviço e Cálculos de Volumes de Terraplenagem é parte integrante do Projeto Executivo de Engenharia para Ligação Viária Avenida Copacabana / Vale das Pombas e contém 20 páginas numeradas.