Rodovia: Vicinal 22 - CAI-346 (Novo Paraíso)
Trecho: Entronc. BR-174 (Km 0,00) x Vicinal 21 - CAI 345 (Km 12,10)
Serviço: Eliminação de pontos críticos, reparos e recuperação
Extensão: 12,10 Km
Município: Caracaraí
ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO

DMT de 200 a 400 **P=** 6,00 **Empolamento:** 20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
0	0,510	0,510				
			10,000	20,470	20,470	24,564
1	1,537	2,047				-
			10,000	59,850	80,320	96,384
2	4,448	6,495				-
			10,000	121,950	202,270	242,724
3	7,747	14,242				-
			10,000	176,230	378,500	454,200
4	9,876	24,118				-
			10,000	203,740	582,240	698,688
5	10,498	34,616				-
		-	10,000	200,360	782,600	939,120
6	9,538	44,154				-
		-	10,000	166,590	949,190	1.139,028
7	7,121	51,275				-
		-	10,000	107,500	1.056,690	1.268,028
8	3,629	54,904				-
		-	10,000	46,650	1.103,340	1.324,008
9	1,036	55,940				-
		-	10,000	14,680	1.118,020	1.341,624
10	0,432	56,372				-
		-	10,000	11,310	1.129,330	1.355,196
11	0,699	57,071				-
		-	10,000	14,620	1.143,950	1.372,740
12	0,763	57,834				-
		-	10,000	16,000	1.159,950	1.391,940
13	0,837	58,671				-
		-	10,000	17,540	1.177,490	1.412,988
14	0,917	59,588				-
		-	10,000	19,260	1.196,750	1.436,100
15	1,009	60,597				-
		-	10,000	28,680	1.225,430	1.470,516
16	1,859	62,456				-
		-	10,000	63,200	1.288,630	1.546,356
17	4,461	66,917				-
		-	10,000	122,460	1.411,090	1.693,308
18	7,785	74,702				-
		-	10,000	178,570	1.589,660	1.907,592
19	10,072	84,774				-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400			**P=** 6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**		
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**
		-	10,000	210,950	1.800,610	2.160,732
20	11,023	95,797				-
		-	10,000	215,210	2.015,820	2.418,984
21	10,498	106,295				-
		-	10,000	190,720	2.206,540	2.647,848
22	8,574	114,869				-
		-	10,000	140,740	2.347,280	2.816,736
23	5,500	120,369				-
		-	10,000	82,880	2.430,160	2.916,192
24	2,788	123,157				-
		-	10,000	41,690	2.471,850	2.966,220
25	1,381	124,538				-
		-	10,000	24,010	2.495,860	2.995,032
26	1,020	125,558				-
		-	10,000	21,590	2.517,450	3.020,940
27	1,139	126,697				-
		-	10,000	24,090	2.541,540	3.049,848
28	1,270	127,967				-
		-	10,000	26,790	2.568,330	3.081,996
29	1,409	129,376				-
		-	10,000	29,630	2.597,960	3.117,552
30	1,554	130,930				-
		-	10,000	32,650	2.630,610	3.156,732
31	1,711	132,641				-
		-	10,000	35,930	2.666,540	3.199,848
32	1,882	134,523				-
		-	10,000	58,610	2.725,150	3.270,180
33	3,979	138,502				-
		-	10,000	114,040	2.839,190	3.407,028
34	7,425	145,927				-
		-	10,000	161,320	3.000,510	3.600,612
35	8,707	154,634				-
		-	10,000	161,990	3.162,500	3.795,000
36	7,492	162,126				-
		-	10,000	115,880	3.278,380	3.934,056
37	4,096	166,222				-
		-	10,000	53,170	3.331,550	3.997,860
38	1,221	167,443				-
		-	10,000	16,740	3.348,290	4.017,948
39	0,453	167,896				-
		-	10,000	10,420	3.358,710	4.030,452
40	0,589	168,485				-
		-	10,000	13,250	3.371,960	4.046,352
41	0,736	169,221				-
		-	10,000	14,250	3.386,210	4.063,452

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400			**P=** 6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**		
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**
42	0,689	169,910				-
		-	10,000	13,350	3.399,560	4.079,472
43	0,646	170,556				-
		-	10,000	12,560	3.412,120	4.094,544
44	0,610	171,166				-
		-	10,000	11,930	3.424,050	4.108,860
45	0,583	171,749				-
		-	10,000	11,450	3.435,500	4.122,600
46	0,562	172,311				-
		-	10,000	11,090	3.446,590	4.135,908
47	0,547	172,858				-
		-	10,000	10,890	3.457,480	4.148,976
48	0,542	173,400				-
		-	10,000	10,520	3.468,000	4.161,600
49	0,510	173,910				-
		-	10,000	9,940	3.477,940	4.173,528
50	0,484	174,394				-
		-	10,000	9,480	3.487,420	4.184,904
51	0,464	174,858				-
		-	10,000	9,170	3.496,590	4.195,908
52	0,453	175,311				-
		-	10,000	9,010	3.505,600	4.206,720
53	0,448	175,759				-
		-	10,000	8,960	3.514,560	4.217,472
54	0,448	176,207				-
		-	10,000	9,010	3.523,570	4.228,284
55	0,453	176,660				-
		-	10,000	9,220	3.532,790	4.239,348
56	0,469	177,129				-
		-	10,000	9,270	3.542,060	4.250,472
57	0,458	177,587				-
		-	10,000	9,110	3.551,170	4.261,404
58	0,453	178,040				-
		-	10,000	9,060	3.560,230	4.272,276
59	0,453	178,493				-
		-	10,000	9,170	3.569,400	4.283,280
60	0,464	178,957				-
		-	10,000	9,430	3.578,830	4.294,596
61	0,479	179,436				-
		-	10,000	9,790	3.588,620	4.306,344
62	0,500	179,936				-
		-	10,000	9,740	3.598,360	4.318,032
63	0,474	180,410				-
		-	10,000	9,320	3.607,680	4.329,216
64	0,458	180,868				-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO							
DMT de	200 a 400			**P=**	6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**			
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**	
		-	10,000	9,060	3.616,740	4.340,088	
65	0,448	181,316				-	
		-	10,000	8,910	3.625,650	4.350,780	
66	0,443	181,759				-	
		-	10,000	8,910	3.634,560	4.361,472	
67	0,448	182,207				-	
		-	10,000	9,060	3.643,620	4.372,344	
68	0,458	182,665				-	
		-	10,000	9,320	3.652,940	4.383,528	
69	0,474	183,139				-	
		-	10,000	9,690	3.662,630	4.395,156	
70	0,495	183,634				-	
		-	10,000	9,900	3.672,530	4.407,036	
71	0,495	184,129				-	
		-	10,000	9,950	3.682,480	4.418,976	
72	0,500	184,629				-	
		-	10,000	10,100	3.692,580	4.431,096	
73	0,510	185,139				-	
		-	10,000	10,360	3.702,940	4.443,528	
74	0,526	185,665				-	
		-	10,000	10,680	3.713,620	4.456,344	
75	0,542	186,207				-	
		-	10,000	10,780	3.724,400	4.469,280	
76	0,536	186,743				-	
		-	10,000	11,090	3.735,490	4.482,588	
77	0,573	187,316				-	
		-	10,000	11,620	3.747,110	4.496,532	
78	0,589	187,905				-	
		-	10,000	11,830	3.758,940	4.510,728	
79	0,594	188,499				-	
		-	10,000	11,770	3.770,710	4.524,852	
80	0,583	189,082				-	
		-	10,000	11,400	3.782,110	4.538,532	
81	0,557	189,639				-	
		-	10,000	10,730	3.792,840	4.551,408	
82	0,516	190,155				-	
		-	10,000	10,780	3.803,620	4.564,344	
83	0,562	190,717				-	
		-	10,000	11,510	3.815,130	4.578,156	
84	0,589	191,306				-	
		-	10,000	11,990	3.827,120	4.592,544	
85	0,610	191,916				-	
		-	10,000	12,200	3.839,320	4.607,184	
86	0,610	192,526				-	
		-	10,000	12,040	3.851,360	4.621,632	

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400			**P=** 6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**		
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**
87	0,594	193,120				-
		-	10,000	11,560	3.862,920	4.635,504
88	0,562	193,682				-
		-	10,000	10,780	3.873,700	4.648,440
89	0,516	194,198				-
		-	10,000	11,260	3.884,960	4.661,952
90	0,610	194,808				-
		-	10,000	13,040	3.898,000	4.677,600
91	0,694	195,502				-
		-	10,000	14,510	3.912,510	4.695,012
92	0,757	196,259				-
		-	10,000	15,670	3.928,180	4.713,816
93	0,810	197,069				-
		-	10,000	16,520	3.944,700	4.733,640
94	0,842	197,911				-
		-	10,000	17,060	3.961,760	4.754,112
95	0,864	198,775				-
		-	10,000	17,280	3.979,040	4.774,848
96	0,864	199,639				-
		-	10,000	17,170	3.996,210	4.795,452
97	0,853	200,492				-
		-	10,000	16,740	4.012,950	4.815,540
98	0,821	201,313				-
		-	10,000	16,000	4.028,950	4.834,740
99	0,779	202,092				-
		-	10,000	14,990	4.043,940	4.852,728
100	0,720	202,812				-
		-	10,000	13,660	4.057,600	4.869,120
101	0,646	203,458				-
		-	10,000	12,030	4.069,630	4.883,556
102	0,557	204,015				-
		-	10,000	12,930	4.082,560	4.899,072
103	0,736	204,751				-
		-	10,000	16,320	4.098,880	4.918,656
104	0,896	205,647				-
		-	10,000	19,480	4.118,360	4.942,032
105	1,052	206,699				-
		-	10,000	22,400	4.140,760	4.968,912
106	1,188	207,887				-
		-	10,000	29,790	4.170,550	5.004,660
107	1,791	209,678				-
		-	10,000	52,430	4.222,980	5.067,576
108	3,452	213,130				-
		-	10,000	99,180	4.322,160	5.186,592
109	6,466	219,596				-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
		-	10,000	145,550	4.467,710	5.361,252
110	8,089	227,685				-
		-	10,000	132,400	4.600,110	5.520,132
111	5,151	232,836				-
		-	10,000	69,420	4.669,530	5.603,436
112	1,791	234,627				-
		-	10,000	26,440	4.695,970	5.635,164
113	0,853	235,480				-
		-	10,000	17,650	4.713,620	5.656,344
114	0,912	236,392				-
		-	10,000	18,720	4.732,340	5.678,808
115	0,960	237,352				-
		-	10,000	19,530	4.751,870	5.702,244
116	0,993	238,345				-
		-	10,000	20,070	4.771,940	5.726,328
117	1,014	239,359				-
		-	10,000	20,390	4.792,330	5.750,796
118	1,025	240,384				-
		-	10,000	20,450	4.812,780	5.775,336
119	1,020	241,404				-
		-	10,000	20,230	4.833,010	5.799,612
120	1,003	242,407				-
		-	10,000	19,740	4.852,750	5.823,300
121	0,971	243,378				-
		-	10,000	18,990	4.871,740	5.846,088
122	0,928	244,306				-
		-	10,000	17,970	4.889,710	5.867,652
123	0,869	245,175				-
		-	10,000	16,690	4.906,400	5.887,680
124	0,800	245,975				-
		-	10,000	15,200	4.921,600	5.905,920
125	0,720	246,695				-
		-	10,000	13,450	4.935,050	5.922,060
126	0,625	247,320				-
		-	10,000	13,240	4.948,290	5.937,948
127	0,699	248,019				-
		-	10,000	14,620	4.962,910	5.955,492
128	0,763	248,782				-
		-	10,000	15,730	4.978,640	5.974,368
129	0,810	249,592				-
		-	10,000	16,520	4.995,160	5.994,192
130	0,842	250,434				-
		-	10,000	17,060	5.012,220	6.014,664
131	0,864	251,298				-
		-	10,000	17,380	5.029,600	6.035,520

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400			**P=** 6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**		
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**
132	0,874	252,172				-
		-	10,000	17,480	5.047,080	6.056,496
133	0,874	253,046				-
		-	10,000	17,320	5.064,400	6.077,280
134	0,858	253,904				-
		-	10,000	16,840	5.081,240	6.097,488
135	0,826	254,730				-
		-	10,000	16,100	5.097,340	6.116,808
136	0,784	255,514				-
		-	10,000	15,150	5.112,490	6.134,988
137	0,731	256,245				-
		-	10,000	13,930	5.126,420	6.151,704
138	0,662	256,907				-
		-	10,000	12,450	5.138,870	6.166,644
139	0,583	257,490				-
		-	10,000	10,780	5.149,650	6.179,580
140	0,495	257,985				-
		-	10,000	13,160	5.162,810	6.195,372
141	0,821	258,806				-
		-	10,000	28,810	5.191,620	6.229,944
142	2,060	260,866				-
		-	10,000	64,880	5.256,500	6.307,800
143	4,428	265,294				-
		-	10,000	114,750	5.371,250	6.445,500
144	7,047	272,341				-
		-	10,000	155,830	5.527,080	6.632,496
145	8,536	280,877				-
		-	10,000	177,390	5.704,470	6.845,364
146	9,203	290,080				-
		-	10,000	187,010	5.891,480	7.069,776
147	9,498	299,578				-
		-	10,000	189,000	6.080,480	7.296,576
148	9,402	308,980				-
		-	10,000	183,520	6.264,000	7.516,800
149	8,950	317,930				-
		-	10,000	171,310	6.435,310	7.722,372
150	8,181	326,111				-
		-	10,000	132,430	6.567,740	7.881,288
151	5,062	331,173				-
		-	10,000	73,200	6.640,940	7.969,128
152	2,258	333,431				-
		-	10,000	38,340	6.679,280	8.015,136
153	1,576	335,007				-
		-	10,000	28,080	6.707,360	8.048,832
154	1,232	336,239				-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400			**P=** 6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**		
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**
		-	10,000	24,370	6.731,730	8.078,076
155	1,205	337,444				-
		-	10,000	25,470	6.757,200	8.108,640
156	1,342	338,786				-
		-	10,000	27,230	6.784,430	8.141,316
157	1,381	340,167				-
		-	10,000	28,170	6.812,600	8.175,120
158	1,436	341,603				-
		-	10,000	29,560	6.842,160	8.210,592
159	1,520	343,123				-
		-	10,000	31,410	6.873,570	8.248,284
160	1,621	344,744				-
		-	10,000	33,660	6.907,230	8.288,676
161	1,745	346,489				-
		-	10,000	43,770	6.951,000	8.341,200
162	2,632	349,121				-
		-	10,000	78,780	7.029,780	8.435,736
163	5,246	354,367				-
		-	10,000	138,900	7.168,680	8.602,416
164	8,644	363,011				-
		-	10,000	198,860	7.367,540	8.841,048
165	11,242	374,253				-
		-	10,000	240,290	7.607,830	9.129,396
166	12,787	387,040				-
		-	10,000	258,750	7.866,580	9.439,896
167	13,088	400,128				-
		-	10,000	255,770	8.122,350	9.746,820
168	12,489	412,617				-
		-	10,000	238,410	8.360,760	10.032,912
169	11,352	423,969				-
		-	10,000	210,990	8.571,750	10.286,100
170	9,747	433,716				-
		-	10,000	174,870	8.746,620	10.495,944
171	7,740	441,456				-
		-	10,000	131,710	8.878,330	10.653,996
172	5,431	446,887				-
		-	10,000	88,650	8.966,980	10.760,376
173	3,434	450,321				-
		-	10,000	56,160	9.023,140	10.827,768
174	2,182	452,503				-
		-	10,000	37,300	9.060,440	10.872,528
175	1,548	454,051				-
		-	10,000	30,180	9.090,620	10.908,744
176	1,470	455,521				-
		-	10,000	31,420	9.122,040	10.946,448

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400			**P=** 6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**		
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**
177	1,672	457,193				-
		-	10,000	35,650	9.157,690	10.989,228
178	1,893	459,086				-
		-	10,000	40,400	9.198,090	11.037,708
179	2,147	461,233				-
		-	10,000	45,700	9.243,790	11.092,548
180	2,423	463,656				-
		-	10,000	54,180	9.297,970	11.157,564
181	2,995	466,651				-
		-	10,000	71,550	9.369,520	11.243,424
182	4,160	470,811				-
		-	10,000	101,980	9.471,500	11.365,800
183	6,038	476,849				-
		-	10,000	148,070	9.619,570	11.543,484
184	8,769	485,618				-
		-	10,000	189,960	9.809,530	11.771,436
185	10,227	495,845				-
		-	10,000	182,470	9.992,000	11.990,400
186	8,020	503,865				-
		-	10,000	129,000	10.121,000	12.145,200
187	4,880	508,745				-
		-	10,000	78,620	10.199,620	12.239,544
188	2,982	511,727				-
		-	10,000	50,540	10.250,160	12.300,192
189	2,072	513,799				-
		-	10,000	40,690	10.290,850	12.349,020
190	1,997	515,796				-
		-	10,000	44,020	10.334,870	12.401,844
191	2,405	518,201				-
		-	10,000	53,630	10.388,500	12.466,200
192	2,958	521,159				-
		-	10,000	69,950	10.458,450	12.550,140
193	4,037	525,196				-
		-	10,000	101,600	10.560,050	12.672,060
194	6,123	531,319				-
		-	10,000	136,900	10.696,950	12.836,340
195	7,567	538,886				-
		-	10,000	139,460	10.836,410	13.003,692
196	6,379	545,265				-
		-	10,000	104,360	10.940,770	13.128,924
197	4,057	549,322				-
		-	10,000	63,270	11.004,040	13.204,848
198	2,270	551,592				-
		-	10,000	34,640	11.038,680	13.246,416
199	1,194	552,786				-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
		-	10,000	19,090	11.057,770	13.269,324
200	0,715	553,501				-
		-	10,000	12,310	11.070,080	13.284,096
201	0,516	554,017				-
		-	10,000	10,940	11.081,020	13.297,224
202	0,578	554,595				-
		-	10,000	12,350	11.093,370	13.312,044
203	0,657	555,252				-
		-	10,000	13,980	11.107,350	13.328,820
204	0,741	555,993				-
		-	10,000	16,580	11.123,930	13.348,716
205	0,917	556,910				-
		-	10,000	20,290	11.144,220	13.373,064
206	1,112	558,022				-
		-	10,000	24,260	11.168,480	13.402,176
207	1,314	559,336				-
		-	10,000	37,910	11.206,390	13.447,668
208	2,477	561,813				-
		-	10,000	83,740	11.290,130	13.548,156
209	5,897	567,710				-
		-	10,000	140,240	11.430,370	13.716,444
210	8,127	575,837				-
		-	10,000	128,270	11.558,640	13.870,368
211	4,700	580,537				-
		-	10,000	63,040	11.621,680	13.946,016
212	1,604	582,141				-
		-	10,000	25,700	11.647,380	13.976,856
213	0,966	583,107				-
		-	10,000	15,910	11.663,290	13.995,948
214	0,625	583,732				-
		-	10,000	11,870	11.675,160	14.010,192
215	0,562	584,294				-
		-	10,000	11,930	11.687,090	14.024,508
216	0,631	584,925				-
		-	10,000	12,090	11.699,180	14.039,016
217	0,578	585,503				-
		-	10,000	11,140	11.710,320	14.052,384
218	0,536	586,039				-
		-	10,000	10,410	11.720,730	14.064,876
219	0,505	586,544				-
		-	10,000	9,950	11.730,680	14.076,816
220	0,490	587,034		-	-	-
		-	10,000	9,740	11.740,420	14.088,504
221	0,484	587,518		-	-	-
		-	10,000	9,740	11.750,160	14.100,192

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
222	0,490	588,008		-	-	-
		-	10,000	9,950	11.760,110	14.112,132
223	0,505	588,513		-	-	-
		-	10,000	10,360	11.770,470	14.124,564
224	0,531	589,044		-	-	-
		-	10,000	10,310	11.780,780	14.136,936
225	0,500	589,544		-	-	-
		-	10,000	9,790	11.790,570	14.148,684
226	0,479	590,023		-	-	-
		-	10,000	9,480	11.800,050	14.160,060
227	0,469	590,492		-	-	-
		-	10,000	9,380	11.809,430	14.171,316
228	0,469	590,961		-	-	-
		-	10,000	9,530	11.818,960	14.182,752
229	0,484	591,445		-	-	-
		-	10,000	9,940	11.828,900	14.194,680
230	0,510	591,955		-	-	-
		-	10,000	10,410	11.839,310	14.207,172
231	0,531	592,486		-	-	-
		-	10,000	10,620	11.849,930	14.219,916
232	0,531	593,017		-	-	-
		-	10,000	10,410	11.860,340	14.232,408
233	0,510	593,527		-	-	-
		-	10,000	11,090	11.871,430	14.245,716
234	0,599	594,126		-	-	-
		-	10,000	15,270	11.886,700	14.264,040
235	0,928	595,054		-	-	-
		-	10,000	24,480	11.911,180	14.293,416
236	1,520	596,574		-	-	-
		-	10,000	39,200	11.950,380	14.340,456
237	2,400	598,974		-	-	-
		-	10,000	64,050	12.014,430	14.417,316
238	4,005	602,979		-	-	-
		-	10,000	109,420	12.123,850	14.548,620
239	6,937	609,916		-	-	-
		-	10,000	154,960	12.278,810	14.734,572
240	8,559	618,475		-	-	-
		-	10,000	143,510	12.422,320	14.906,784
241	5,792	624,267		-	-	-
		-	10,000	83,040	12.505,360	15.006,432
242	2,512	626,779		-	-	-
		-	10,000	39,710	12.545,070	15.054,084
243	1,459	628,238		-	-	-
		-	10,000	27,960	12.573,030	15.087,636
244	1,337	629,575		-	-	-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO							
DMT de	200 a 400			**P=**	6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**			
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**	
		-	10,000	25,310	12.598,340	15.118,008	
245	1,194	630,769		-	-	-	
		-	10,000	22,240	12.620,580	15.144,696	
246	1,030	631,799		-	-	-	
		-	10,000	18,780	12.639,360	15.167,232	
247	0,848	632,647		-	-	-	
		-	10,000	14,940	12.654,300	15.185,160	
248	0,646	633,293		-	-	-	
		-	10,000	10,730	12.665,030	15.198,036	
249	0,427	633,720		-	-	-	
		-	10,000	9,170	12.674,200	15.209,040	
250	0,490	634,210		-	-	-	
		-	10,000	10,210	12.684,410	15.221,292	
251	0,531	634,741		-	-	-	
		-	10,000	10,830	12.695,240	15.234,288	
252	0,552	635,293		-	-	-	
		-	10,000	11,040	12.706,280	15.247,536	
253	0,552	635,845		-	-	-	
		-	10,000	10,830	12.717,110	15.260,532	
254	0,531	636,376		-	-	-	
		-	10,000	10,210	12.727,320	15.272,784	
255	0,490	636,866		-	-	-	
		-	10,000	14,400	12.741,720	15.290,064	
256	0,950	637,816		-	-	-	
		-	10,000	34,860	12.776,580	15.331,896	
257	2,536	640,352		-	-	-	
		-	10,000	81,190	12.857,770	15.429,324	
258	5,583	645,935		-	-	-	
		-	10,000	141,810	12.999,580	15.599,496	
259	8,598	654,533		-	-	-	
		-	10,000	178,960	13.178,540	15.814,248	
260	9,298	663,831		-	-	-	
		-	10,000	168,120	13.346,660	16.015,992	
261	7,514	671,345		-	-	-	
		-	10,000	112,120	13.458,780	16.150,536	
262	3,698	675,043		-	-	-	
		-	10,000	50,680	13.509,460	16.211,352	
263	1,370	676,413		-	-	-	
		-	10,000	23,360	13.532,820	16.239,384	
264	0,966	677,379		-	-	-	
		-	10,000	15,180	13.548,000	16.257,600	
265	0,552	677,931		-	-	-	
		-	10,000	11,460	13.559,460	16.271,352	
266	0,594	678,525		-	-	-	
		-	10,000	12,090	13.571,550	16.285,860	

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
267	0,615	679,140		-	-	-
		-	10,000	12,300	13.583,850	16.300,620
268	0,615	679,755		-	-	-
		-	10,000	12,090	13.595,940	16.315,128
269	0,594	680,349		-	-	-
		-	10,000	11,460	13.607,400	16.328,880
270	0,552	680,901		-	-	-
		-	10,000	10,420	13.617,820	16.341,384
271	0,490	681,391		-	-	-
		-	10,000	9,800	13.627,620	16.353,144
272	0,490	681,881		-	-	-
		-	10,000	9,690	13.637,310	16.364,772
273	0,479	682,360		-	-	-
		-	10,000	9,530	13.646,840	16.376,208
274	0,474	682,834		-	-	-
		-	10,000	9,480	13.656,320	16.387,584
275	0,474	683,308		-	-	-
		-	10,000	9,530	13.665,850	16.399,020
276	0,479	683,787		-	-	-
		-	10,000	9,630	13.675,480	16.410,576
277	0,484	684,271		-	-	-
		-	10,000	9,790	13.685,270	16.422,324
278	0,495	684,766		-	-	-
		-	10,000	10,050	13.695,320	16.434,384
279	0,510	685,276		-	-	-
		-	10,000	11,990	13.707,310	16.448,772
280	0,689	685,965		-	-	-
		-	10,000	18,990	13.726,300	16.471,560
281	1,210	687,175		-	-	-
		-	10,000	33,110	13.759,410	16.511,292
282	2,101	689,276		-	-	-
		-	10,000	58,820	13.818,230	16.581,876
283	3,781	693,057		-	-	-
		-	10,000	106,380	13.924,610	16.709,532
284	6,857	699,914		-	-	-
		-	10,000	158,220	14.082,830	16.899,396
285	8,965	708,879		-	-	-
		-	10,000	180,880	14.263,710	17.116,452
286	9,123	718,002		-	-	-
		-	10,000	184,050	14.447,760	17.337,312
287	9,282	727,284		-	-	-
		-	10,000	187,390	14.635,150	17.562,180
288	9,457	736,741		-	-	-
		-	10,000	187,390	14.822,540	17.787,048
289	9,282	746,023		-	-	-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO							
DMT de	200 a 400			**P=**	6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**			
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**	
		-	10,000	177,090	14.999,630	17.999,556	
290	8,427	754,450		-	-	-	
		-	10,000	151,020	15.150,650	18.180,780	
291	6,675	761,125		-	-	-	
		-	10,000	106,480	15.257,130	18.308,556	
292	3,973	765,098		-	-	-	
		-	10,000	57,640	15.314,770	18.377,724	
293	1,791	766,889		-	-	-	
		-	10,000	28,650	15.343,420	18.412,104	
294	1,074	767,963		-	-	-	
		-	10,000	20,770	15.364,190	18.437,028	
295	1,003	768,966		-	-	-	
		-	10,000	19,360	15.383,550	18.460,260	
296	0,933	769,899		-	-	-	
		-	10,000	18,020	15.401,570	18.481,884	
297	0,869	770,768		-	-	-	
		-	10,000	16,740	15.418,310	18.501,972	
298	0,805	771,573		-	-	-	
		-	10,000	15,570	15.433,880	18.520,656	
299	0,752	772,325		-	-	-	
		-	10,000	14,510	15.448,390	18.538,068	
300	0,699	773,024		-	-	-	
		-	10,000	13,510	15.461,900	18.554,280	
301	0,652	773,676		-	-	-	
		-	10,000	12,560	15.474,460	18.569,352	
302	0,604	774,280		-	-	-	
		-	10,000	11,720	15.486,180	18.583,416	
303	0,568	774,848		-	-	-	
		-	10,000	10,990	15.497,170	18.596,604	
304	0,531	775,379		-	-	-	
		-	10,000	11,560	15.508,730	18.610,476	
305	0,625	776,004		-	-	-	
		-	10,000	16,230	15.524,960	18.629,952	
306	0,998	777,002		-	-	-	
		-	10,000	26,580	15.551,540	18.661,848	
307	1,660	778,662		-	-	-	
		-	10,000	28,760	15.580,300	18.696,360	
308	1,216	779,878		-	-	-	
		-	10,000	27,680	15.607,980	18.729,576	
309	1,552	781,430		-	-	-	
		-	10,000	29,560	15.637,540	18.765,048	
310	1,404	782,834		-	-	-	
		-	10,000	32,910	15.670,450	18.804,540	
311	1,887	784,721		-	-	-	
		-	10,000	38,150	15.708,600	18.850,320	

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
312	1,928	786,649		-	-	-
		-	10,000	33,140	15.741,740	18.890,088
313	1,386	788,035		-	-	-
		-	10,000	22,440	15.764,180	18.917,016
314	0,858	788,893		-	-	-
		-	10,000	16,740	15.780,920	18.937,104
315	0,816	789,709		-	-	-
		-	10,000	15,840	15.796,760	18.956,112
316	0,768	790,477		-	-	-
		-	10,000	14,720	15.811,480	18.973,776
317	0,704	791,181		-	-	-
		-	10,000	13,450	15.824,930	18.989,916
318	0,641	791,822		-	-	-
		-	10,000	12,090	15.837,020	19.004,424
319	0,568	792,390		-	-	-
		-	10,000	10,580	15.847,600	19.017,120
320	0,490	792,880		-	-	-
		-	10,000	9,950	15.857,550	19.029,060
321	0,505	793,385		-	-	-
		-	10,000	10,210	15.867,760	19.041,312
322	0,516	793,901		-	-	-
		-	10,000	10,320	15.878,080	19.053,696
323	0,516	794,417		-	-	-
		-	10,000	10,260	15.888,340	19.066,008
324	0,510	794,927		-	-	-
		-	10,000	10,050	15.898,390	19.078,068
325	0,495	795,422		-	-	-
		-	10,000	14,230	15.912,620	19.095,144
326	0,928	796,350		-	-	-
		-	10,000	32,860	15.945,480	19.134,576
327	2,358	798,708		-	-	-
		-	10,000	34,070	15.979,550	19.175,460
328	1,049	799,757		-	-	-
		-	10,000	36,810	16.016,360	19.219,632
329	2,632	802,389		-	-	-
		-	10,000	93,640	16.110,000	19.332,000
330	6,732	809,121		-	-	-
		-	10,000	147,300	16.257,300	19.508,760
331	7,998	817,119		-	-	-
		-	10,000	159,500	16.416,800	19.700,160
332	7,952	825,071		-	-	-
		-	10,000	161,180	16.577,980	19.893,576
333	8,166	833,237		-	-	-
		-	10,000	168,100	16.746,080	20.095,296
334	8,644	841,881		-	-	-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
		-	10,000	172,880	16.918,960	20.302,752
335	8,644	850,525		-	-	-
		-	10,000	160,610	17.079,570	20.495,484
336	7,417	857,942		-	-	-
		-	10,000	136,960	17.216,530	20.659,836
337	6,279	864,221		-	-	-
		-	10,000	126,510	17.343,040	20.811,648
338	6,372	870,593		-	-	-
		-	10,000	140,970	17.484,010	20.980,812
339	7,725	878,318		-	-	-
		-	10,000	160,750	17.644,760	21.173,712
340	8,350	886,668		-	-	-
		-	10,000	145,510	17.790,270	21.348,324
341	6,201	892,869		-	-	-
		-	10,000	102,970	17.893,240	21.471,888
342	4,096	896,965		-	-	-
		-	10,000	83,340	17.976,580	21.571,896
343	4,238	901,203		-	-	-
		-	10,000	109,200	18.085,780	21.702,936
344	6,682	907,885		-	-	-
		-	10,000	151,870	18.237,650	21.885,180
345	8,505	916,390		-	-	-
		-	10,000	146,700	18.384,350	22.061,220
346	6,165	922,555		-	-	-
		-	10,000	90,740	18.475,090	22.170,108
347	2,909	925,464		-	-	-
		-	10,000	41,030	18.516,120	22.219,344
348	1,194	926,658		-	-	-
		-	10,000	18,560	18.534,680	22.241,616
349	0,662	927,320		-	-	-
		-	10,000	13,190	18.547,870	22.257,444
350	0,657	927,977		-	-	-
		-	10,000	13,030	18.560,900	22.273,080
351	0,646	928,623		-	-	-
		-	10,000	12,710	18.573,610	22.288,332
352	0,625	929,248		-	-	-
		-	10,000	12,290	18.585,900	22.303,080
353	0,604	929,852		-	-	-
		-	10,000	11,720	18.597,620	22.317,144
354	0,568	930,420		-	-	-
		-	10,000	10,940	18.608,560	22.330,272
355	0,526	930,946		-	-	-
		-	10,000	10,050	18.618,610	22.342,332
356	0,479	931,425		-	-	-
		-	10,000	17,600	18.636,210	22.363,452

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
357	1,281	932,706		-	-	-
		-	10,000	23,570	18.659,780	22.391,736
358	1,076	933,782		-	-	-
		-	10,000	23,600	18.683,380	22.420,056
359	1,284	935,066		-	-	-
		-	10,000	25,490	18.708,870	22.450,644
360	1,265	936,331		-	-	-
		-	10,000	30,270	18.739,140	22.486,968
361	1,762	938,093		-	-	-
		-	10,000	49,410	18.788,550	22.546,260
362	3,179	941,272		-	-	-
		-	10,000	40,110	18.828,660	22.594,392
363	0,832	942,104		-	-	-
		-	10,000	12,130	18.840,790	22.608,948
364	0,381	942,485		-	-	-
		-	10,000	6,590	18.847,380	22.616,856
365	0,278	942,763		-	-	-
		-	10,000	6,280	18.853,660	22.624,392
366	0,350	943,113		-	-	-
		-	10,000	6,790	18.860,450	22.632,540
367	0,329	943,442		-	-	-
		-	10,000	6,580	18.867,030	22.640,436
368	0,329	943,771		-	-	-
		-	10,000	6,740	18.873,770	22.648,524
369	0,345	944,116		-	-	-
		-	10,000	7,260	18.881,030	22.657,236
370	0,381	944,497		-	-	-
		-	10,000	8,130	18.889,160	22.666,992
371	0,432	944,929		-	-	-
		-	10,000	9,370	18.898,530	22.678,236
372	0,505	945,434		-	-	-
		-	10,000	9,790	18.908,320	22.689,984
373	0,474	945,908		-	-	-
		-	10,000	9,320	18.917,640	22.701,168
374	0,458	946,366		-	-	-
		-	10,000	9,220	18.926,860	22.712,232
375	0,464	946,830		-	-	-
		-	10,000	9,540	18.936,400	22.723,680
376	0,490	947,320		-	-	-
		-	10,000	10,210	18.946,610	22.735,932
377	0,531	947,851		-	-	-
		-	10,000	9,890	18.956,500	22.747,800
378	0,458	948,309		-	-	-
		-	10,000	8,590	18.965,090	22.758,108
379	0,401	948,710		-	-	-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO							
DMT de	200 a 400			**P=**	6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**			
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**	
		-	10,000	7,660	18.972,750	22.767,300	
380	0,365	949,075		-	-	-	
		-	10,000	7,150	18.979,900	22.775,880	
381	0,350	949,425		-	-	-	
		-	10,000	7,000	18.986,900	22.784,280	
382	0,350	949,775		-	-	-	
		-	10,000	7,200	18.994,100	22.792,920	
383	0,370	950,145		-	-	-	
		-	10,000	7,820	19.001,920	22.802,304	
384	0,412	950,557		-	-	-	
		-	10,000	8,810	19.010,730	22.812,876	
385	0,469	951,026		-	-	-	
		-	10,000	10,160	19.020,890	22.825,068	
386	0,547	951,573		-	-	-	
		-	10,000	19,440	19.040,330	22.848,396	
387	1,397	952,970		-	-	-	
		-	10,000	24,340	19.064,670	22.877,604	
388	1,037	954,007		-	-	-	
		-	10,000	20,470	19.085,140	22.902,168	
389	1,010	955,017		-	-	-	
		-	10,000	29,850	19.114,990	22.937,988	
390	1,975	956,992		-	-	-	
		-	10,000	36,720	19.151,710	22.982,052	
391	1,697	958,689		-	-	-	
		-	10,000	29,020	19.180,730	23.016,876	
392	1,205	959,894		-	-	-	
		-	10,000	24,990	19.205,720	23.046,864	
393	1,294	961,188		-	-	-	
		-	10,000	32,750	19.238,470	23.086,164	
394	1,981	963,169		-	-	-	
		-	10,000	32,080	19.270,550	23.124,660	
395	1,227	964,396		-	-	-	
		-	10,000	29,600	19.300,150	23.160,180	
396	1,733	966,129		-	-	-	
		-	10,000	36,940	19.337,090	23.204,508	
397	1,961	968,090		-	-	-	
		-	10,000	39,560	19.376,650	23.251,980	
398	1,995	970,085		-	-	-	
		-	10,000	38,230	19.414,880	23.297,856	
399	1,828	971,913		-	-	-	
		-	10,000	38,180	19.453,060	23.343,672	
400	1,990	973,903		-	-	-	
		-	10,000	37,190	19.490,250	23.388,300	
401	1,729	975,632		-	-	-	
		-	10,000	45,470	19.535,720	23.442,864	

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
402	2,818	978,450		-	-	-
		-	10,000	41,270	19.576,990	23.492,388
403	1,309	979,759		-	-	-
		-	10,000	22,210	19.599,200	23.519,040
404	0,912	980,671		-	-	-
		-	10,000	19,260	19.618,460	23.542,152
405	1,014	981,685		-	-	-
		-	10,000	21,260	19.639,720	23.567,664
406	1,112	982,797		-	-	-
		-	10,000	23,110	19.662,830	23.595,396
407	1,199	983,996		-	-	-
		-	10,000	33,230	19.696,060	23.635,272
408	2,124	986,120		-	-	-
		-	10,000	31,530	19.727,590	23.673,108
409	1,029	987,149		-	-	-
		-	10,000	25,660	19.753,250	23.703,900
410	1,537	988,686		-	-	-
		-	10,000	28,590	19.781,840	23.738,208
411	1,322	990,008		-	-	-
		-	10,000	47,870	19.829,710	23.795,652
412	3,465	993,473		-	-	-
		-	10,000	48,850	19.878,560	23.854,272
413	1,420	994,893		-	-	-
		-	10,000	18,520	19.897,080	23.876,496
414	0,432	995,325		-	-	-
		-	10,000	7,410	19.904,490	23.885,388
415	0,309	995,634		-	-	-
		-	10,000	9,130	19.913,620	23.896,344
416	0,604	996,238		-	-	-
		-	10,000	12,030	19.925,650	23.910,780
417	0,599	996,837		-	-	-
		-	10,000	11,820	19.937,470	23.924,964
418	0,583	997,420		-	-	-
		-	10,000	11,400	19.948,870	23.938,644
419	0,557	997,977		-	-	-
		-	10,000	10,780	19.959,650	23.951,580
420	0,521	998,498		-	-	-
		-	10,000	10,260	19.969,910	23.963,892
421	0,505	999,003		-	-	-
		-	10,000	18,080	19.987,990	23.985,588
422	1,303	1.000,306		-	-	-
		-	10,000	23,150	20.011,140	24.013,368
423	1,012	1.001,318		-	-	-
		-	10,000	22,070	20.033,210	24.039,852
424	1,195	1.002,513		-	-	-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO							
DMT de	200 a 400			**P=**	6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**			
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**	
		-	10,000	26,530	20.059,740	24.071,688	
425	1,458	1.003,971		-	-	-	
		-	10,000	27,080	20.086,820	24.104,184	
426	1,250	1.005,221		-	-	-	
		-	10,000	25,780	20.112,600	24.135,120	
427	1,328	1.006,549		-	-	-	
		-	10,000	31,850	20.144,450	24.173,340	
428	1,857	1.008,406		-	-	-	
		-	10,000	38,010	20.182,460	24.218,952	
429	1,944	1.010,350		-	-	-	
		-	10,000	34,490	20.216,950	24.260,340	
430	1,505	1.011,855		-	-	-	
		-	10,000	28,990	20.245,940	24.295,128	
431	1,394	1.013,249		-	-	-	
		-	10,000	26,980	20.272,920	24.327,504	
432	1,304	1.014,553		-	-	-	
		-	10,000	26,600	20.299,520	24.359,424	
433	1,356	1.015,909		-	-	-	
		-	10,000	29,220	20.328,740	24.394,488	
434	1,566	1.017,475		-	-	-	
		-	10,000	27,240	20.355,980	24.427,176	
435	1,158	1.018,633		-	-	-	
		-	10,000	29,920	20.385,900	24.463,080	
436	1,834	1.020,467		-	-	-	
		-	10,000	45,500	20.431,400	24.517,680	
437	2,716	1.023,183		-	-	-	
		-	10,000	38,440	20.469,840	24.563,808	
438	1,128	1.024,311		-	-	-	
		-	10,000	18,640	20.488,480	24.586,176	
439	0,736	1.025,047		-	-	-	
		-	10,000	16,160	20.504,640	24.605,568	
440	0,880	1.025,927		-	-	-	
		-	10,000	17,220	20.521,860	24.626,232	
441	0,842	1.026,769		-	-	-	
		-	10,000	16,470	20.538,330	24.645,996	
442	0,805	1.027,574		-	-	-	
		-	10,000	15,780	20.554,110	24.664,932	
443	0,773	1.028,347		-	-	-	
		-	10,000	15,250	20.569,360	24.683,232	
444	0,752	1.029,099		-	-	-	
		-	10,000	14,930	20.584,290	24.701,148	
445	0,741	1.029,840		-	-	-	
		-	10,000	14,770	20.599,060	24.718,872	
446	0,736	1.030,576		-	-	-	
		-	10,000	14,770	20.613,830	24.736,596	

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
447	0,741	1.031,317		-	-	-
		-	10,000	15,090	20.628,920	24.754,704
448	0,768	1.032,085		-	-	-
		-	10,000	15,680	20.644,600	24.773,520
449	0,800	1.032,885		-	-	-
		-	10,000	16,420	20.661,020	24.793,224
450	0,842	1.033,727		-	-	-
		-	10,000	21,560	20.682,580	24.819,096
451	1,314	1.035,041		-	-	-
		-	10,000	40,180	20.722,760	24.867,312
452	2,704	1.037,745		-	-	-
		-	10,000	39,500	20.762,260	24.914,712
453	1,246	1.038,991		-	-	-
		-	10,000	29,030	20.791,290	24.949,548
454	1,657	1.040,648		-	-	-
		-	10,000	27,840	20.819,130	24.982,956
455	1,127	1.041,775		-	-	-
		-	10,000	26,790	20.845,920	25.015,104
456	1,552	1.043,327		-	-	-
		-	10,000	48,360	20.894,280	25.073,136
457	3,284	1.046,611		-	-	-
		-	10,000	43,040	20.937,320	25.124,784
458	1,020	1.047,631		-	-	-
		-	10,000	14,520	20.951,840	25.142,208
459	0,432	1.048,063		-	-	-
		-	10,000	7,410	20.959,250	25.151,100
460	0,309	1.048,372		-	-	-
		-	10,000	7,310	20.966,560	25.159,872
461	0,422	1.048,794		-	-	-
		-	10,000	9,690	20.976,250	25.171,500
462	0,547	1.049,341		-	-	-
		-	10,000	10,570	20.986,820	25.184,184
463	0,510	1.049,851		-	-	-
		-	10,000	9,940	20.996,760	25.196,112
464	0,484	1.050,335		-	-	-
		-	10,000	9,480	21.006,240	25.207,488
465	0,464	1.050,799		-	-	-
		-	10,000	9,170	21.015,410	25.218,492
466	0,453	1.051,252		-	-	-
		-	10,000	9,060	21.024,470	25.229,364
467	0,453	1.051,705		-	-	-
		-	10,000	9,110	21.033,580	25.240,296
468	0,458	1.052,163		-	-	-
		-	10,000	9,320	21.042,900	25.251,480
469	0,474	1.052,637		-	-	-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO							
DMT de	200 a 400			**P=**	6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**			
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**	
		-	10,000	9,740	21.052,640	25.263,168	
470	0,500	1.053,137		-	-	-	
		-	10,000	9,690	21.062,330	25.274,796	
471	0,469	1.053,606		-	-	-	
		-	10,000	9,170	21.071,500	25.285,800	
472	0,448	1.054,054		-	-	-	
		-	10,000	8,860	21.080,360	25.296,432	
473	0,438	1.054,492		-	-	-	
		-	10,000	8,700	21.089,060	25.306,872	
474	0,432	1.054,924		-	-	-	
		-	10,000	8,700	21.097,760	25.317,312	
475	0,438	1.055,362		-	-	-	
		-	10,000	8,860	21.106,620	25.327,944	
476	0,448	1.055,810		-	-	-	
		-	10,000	9,170	21.115,790	25.338,948	
477	0,469	1.056,279		-	-	-	
		-	10,000	9,690	21.125,480	25.350,576	
478	0,500	1.056,779		-	-	-	
		-	10,000	9,740	21.135,220	25.362,264	
479	0,474	1.057,253		-	-	-	
		-	10,000	9,320	21.144,540	25.373,448	
480	0,458	1.057,711		-	-	-	
		-	10,000	9,110	21.153,650	25.384,380	
481	0,453	1.058,164		-	-	-	
		-	10,000	9,060	21.162,710	25.395,252	
482	0,453	1.058,617		-	-	-	
		-	10,000	9,170	21.171,880	25.406,256	
483	0,464	1.059,081		-	-	-	
		-	10,000	9,480	21.181,360	25.417,632	
484	0,484	1.059,565		-	-	-	
		-	10,000	9,940	21.191,300	25.429,560	
485	0,510	1.060,075		-	-	-	
		-	10,000	10,460	21.201,760	25.442,112	
486	0,536	1.060,611		-	-	-	
		-	10,000	10,830	21.212,590	25.455,108	
487	0,547	1.061,158		-	-	-	
		-	10,000	10,940	21.223,530	25.468,236	
488	0,547	1.061,705		-	-	-	
		-	10,000	10,780	21.234,310	25.481,172	
489	0,531	1.062,236		-	-	-	
		-	10,000	10,360	21.244,670	25.493,604	
490	0,505	1.062,741		-	-	-	
		-	10,000	14,060	21.258,730	25.510,476	
491	0,901	1.063,642		-	-	-	
		-	10,000	31,360	21.290,090	25.548,108	

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
492	2,235	1.065,877		-	-	-
		-	10,000	39,750	21.329,840	25.595,808
493	1,740	1.067,617		-	-	-
		-	10,000	30,240	21.360,080	25.632,096
494	1,284	1.068,901		-	-	-
		-	10,000	24,570	21.384,650	25.661,580
495	1,173	1.070,074		-	-	-
		-	10,000	23,970	21.408,620	25.690,344
496	1,224	1.071,298		-	-	-
		-	10,000	28,640	21.437,260	25.724,712
497	1,640	1.072,938		-	-	-
		-	10,000	38,050	21.475,310	25.770,372
498	2,165	1.075,103		-	-	-
		-	10,000	31,470	21.506,780	25.808,136
499	0,982	1.076,085		-	-	-
		-	10,000	18,350	21.525,130	25.830,156
500	0,853	1.076,938		-	-	-
		-	10,000	20,680	21.545,810	25.854,972
501	1,215	1.078,153		-	-	-
		-	10,000	27,910	21.573,720	25.888,464
502	1,576	1.079,729		-	-	-
		-	10,000	42,800	21.616,520	25.939,824
503	2,704	1.082,433		-	-	-
		-	10,000	43,290	21.659,810	25.991,772
504	1,625	1.084,058		-	-	-
		-	10,000	32,670	21.692,480	26.030,976
505	1,642	1.085,700		-	-	-
		-	10,000	29,500	21.721,980	26.066,376
506	1,308	1.087,008		-	-	-
		-	10,000	33,920	21.755,900	26.107,080
507	2,084	1.089,092		-	-	-
		-	10,000	26,260	21.782,160	26.138,592
508	0,542	1.089,634		-	-	-
		-	10,000	8,250	21.790,410	26.148,492
509	0,283	1.089,917		-	-	-
		-	10,000	9,030	21.799,440	26.159,328
510	0,620	1.090,537		-	-	-
		-	10,000	12,770	21.812,210	26.174,652
511	0,657	1.091,194		-	-	-
		-	10,000	13,350	21.825,560	26.190,672
512	0,678	1.091,872		-	-	-
		-	10,000	13,610	21.839,170	26.207,004
513	0,683	1.092,555		-	-	-
		-	10,000	13,610	21.852,780	26.223,336
514	0,678	1.093,233		-	-	-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400			**P=** 6,00	**Empolamento:**	20,00%
Estacas	**Área**		**Semi-Distância (m)**	**Volume**		
	Aterro (m²)	**Acum. Aterro (m²)**		**Aterro (m³)**	**Acum. Aterro (m³)**	**Empolado (m³)**
		-	10,000	13,400	21.866,180	26.239,416
515	0,662	1.093,895		-	-	-
		-	10,000	12,930	21.879,110	26.254,932
516	0,631	1.094,526		-	-	-
		-	10,000	12,200	21.891,310	26.269,572
517	0,589	1.095,115		-	-	-
		-	10,000	11,200	21.902,510	26.283,012
518	0,531	1.095,646		-	-	-
		-	10,000	10,930	21.913,440	26.296,128
519	0,562	1.096,208		-	-	-
		-	10,000	11,510	21.924,950	26.309,940
520	0,589	1.096,797		-	-	-
		-	10,000	11,830	21.936,780	26.324,136
521	0,594	1.097,391		-	-	-
		-	10,000	11,830	21.948,610	26.338,332
522	0,589	1.097,980		-	-	-
		-	10,000	11,620	21.960,230	26.352,276
523	0,573	1.098,553		-	-	-
		-	10,000	11,150	21.971,380	26.365,656
524	0,542	1.099,095		-	-	-
		-	10,000	10,420	21.981,800	26.378,160
525	0,500	1.099,595		-	-	-
		-	10,000	16,990	21.998,790	26.398,548
526	1,199	1.100,794		-	-	-
		-	10,000	48,210	22.047,000	26.456,400
527	3,622	1.104,416		-	-	-
		-	10,000	55,960	22.102,960	26.523,552
528	1,974	1.106,390		-	-	-
		-	10,000	37,940	22.140,900	26.569,080
529	1,820	1.108,210		-	-	-
		-	10,000	28,770	22.169,670	26.603,604
530	1,057	1.109,267		-	-	-
		-	10,000	27,640	22.197,310	26.636,772
531	1,707	1.110,974		-	-	-
		-	10,000	27,870	22.225,180	26.670,216
532	1,080	1.112,054		-	-	-
		-	10,000	37,780	22.262,960	26.715,552
533	2,698	1.114,752		-	-	-
		-	10,000	37,770	22.300,730	26.760,876
534	1,079	1.115,831		-	-	-
		-	10,000	15,370	22.316,100	26.779,320
535	0,458	1.116,289		-	-	-
		-	10,000	7,770	22.323,870	26.788,644
536	0,319	1.116,608		-	-	-
		-	10,000	7,410	22.331,280	26.797,536

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
537	0,422	1.117,030		-	-	-
		-	10,000	9,430	22.340,710	26.808,852
538	0,521	1.117,551		-	-	-
		-	10,000	11,310	22.352,020	26.822,424
539	0,610	1.118,161		-	-	-
		-	10,000	12,770	22.364,790	26.837,748
540	0,667	1.118,828		-	-	-
		-	10,000	13,870	22.378,660	26.854,392
541	0,720	1.119,548		-	-	-
		-	10,000	22,120	22.400,780	26.880,936
542	1,492	1.121,040		-	-	-
		-	10,000	54,070	22.454,850	26.945,820
543	3,915	1.124,955		-	-	-
		-	10,000	55,900	22.510,750	27.012,900
544	1,675	1.126,630		-	-	-
		-	10,000	33,700	22.544,450	27.053,340
545	1,695	1.128,325		-	-	-
		-	10,000	34,350	22.578,800	27.094,560
546	1,740	1.130,065		-	-	-
		-	10,000	27,710	22.606,510	27.127,812
547	1,031	1.131,096		-	-	-
		-	10,000	26,970	22.633,480	27.160,176
548	1,666	1.132,762		-	-	-
		-	10,000	26,910	22.660,390	27.192,468
549	1,025	1.133,787		-	-	-
		-	10,000	21,640	22.682,030	27.218,436
550	1,139	1.134,926		-	-	-
		-	10,000	23,870	22.705,900	27.247,080
551	1,248	1.136,174		-	-	-
		-	10,000	36,420	22.742,320	27.290,784
552	2,394	1.138,568		-	-	-
		-	10,000	34,460	22.776,780	27.332,136
553	1,052	1.139,620		-	-	-
		-	10,000	22,710	22.799,490	27.359,388
554	1,219	1.140,839		-	-	-
		-	10,000	26,470	22.825,960	27.391,152
555	1,428	1.142,267		-	-	-
		-	10,000	27,660	22.853,620	27.424,344
556	1,338	1.143,605		-	-	-
		-	10,000	28,980	22.882,600	27.459,120
557	1,560	1.145,165		-	-	-
		-	10,000	29,020	22.911,620	27.493,944
558	1,342	1.146,507		-	-	-
		-	10,000	18,890	22.930,510	27.516,612
559	0,547	1.147,054		-	-	-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
		-	10,000	9,230	22.939,740	27.527,688
560	0,376	1.147,430		-	-	-
		-	10,000	8,810	22.948,550	27.538,260
561	0,505	1.147,935		-	-	-
		-	10,000	11,300	22.959,850	27.551,820
562	0,625	1.148,560		-	-	-
		-	10,000	12,500	22.972,350	27.566,820
563	0,625	1.149,185		-	-	-
		-	10,000	12,450	22.984,800	27.581,760
564	0,620	1.149,805		-	-	-
		-	10,000	12,350	22.997,150	27.596,580
565	0,615	1.150,420		-	-	-
		-	10,000	12,140	23.009,290	27.611,148
566	0,599	1.151,019		-	-	-
		-	10,000	11,770	23.021,060	27.625,272
567	0,578	1.151,597		-	-	-
		-	10,000	11,350	23.032,410	27.638,892
568	0,557	1.152,154		-	-	-
		-	10,000	10,830	23.043,240	27.651,888
569	0,526	1.152,680		-	-	-
		-	10,000	10,520	23.053,760	27.664,512
570	0,526	1.153,206		-	-	-
		-	10,000	10,420	23.064,180	27.677,016
571	0,516	1.153,722		-	-	-
		-	10,000	10,210	23.074,390	27.689,268
572	0,505	1.154,227		-	-	-
		-	10,000	9,890	23.084,280	27.701,136
573	0,484	1.154,711		-	-	-
		-	10,000	9,580	23.093,860	27.712,632
574	0,474	1.155,185		-	-	-
		-	10,000	9,580	23.103,440	27.724,128
575	0,484	1.155,669		-	-	-
		-	10,000	15,410	23.118,850	27.742,620
576	1,057	1.156,726		-	-	-
		-	10,000	39,540	23.158,390	27.790,068
577	2,897	1.159,623		-	-	-
		-	10,000	43,050	23.201,440	27.841,728
578	1,408	1.161,031		-	-	-
		-	10,000	33,980	23.235,420	27.882,504
579	1,990	1.163,021		-	-	-
		-	10,000	30,640	23.266,060	27.919,272
580	1,074	1.164,095		-	-	-
		-	10,000	24,680	23.290,740	27.948,888
581	1,394	1.165,489		-	-	-
		-	10,000	27,630	23.318,370	27.982,044

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO						
DMT de	200 a 400		**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
582	1,369	1.166,858		-	-	-
		-	10,000	33,310	23.351,680	28.022,016
583	1,962	1.168,820		-	-	-
		-	10,000	27,940	23.379,620	28.055,544
584	0,832	1.169,652		-	-	-
		-	10,000	14,840	23.394,460	28.073,352
585	0,652	1.170,304		-	-	-
		-	10,000	11,470	23.405,930	28.087,116
586	0,495	1.170,799		-	-	-
		-	10,000	8,550	23.414,480	28.097,376
587	0,360	1.171,159		-	-	-
		-	10,000	7,100	23.421,580	28.105,896
588	0,350	1.171,509		-	-	-
		-	10,000	7,100	23.428,680	28.114,416
589	0,360	1.171,869		-	-	-
		-	10,000	7,510	23.436,190	28.123,428
590	0,391	1.172,260		-	-	-
		-	10,000	8,340	23.444,530	28.133,436
591	0,443	1.172,703		-	-	-
		-	10,000	9,530	23.454,060	28.144,872
592	0,510	1.173,213		-	-	-
		-	10,000	9,740	23.463,800	28.156,560
593	0,464	1.173,677		-	-	-
		-	10,000	9,070	23.472,870	28.167,444
594	0,443	1.174,120		-	-	-
		-	10,000	8,810	23.481,680	28.178,016
595	0,438	1.174,558		-	-	-
		-	10,000	8,910	23.490,590	28.188,708
596	0,453	1.175,011		-	-	-
		-	10,000	9,370	23.499,960	28.199,952
597	0,484	1.175,495		-	-	-
		-	10,000	10,260	23.510,220	28.212,264
598	0,542	1.176,037		-	-	-
		-	10,000	10,520	23.520,740	28.224,888
599	0,510	1.176,547		-	-	-
		-	10,000	10,150	23.530,890	28.237,068
600	0,505	1.177,052		-	-	-
		-	10,000	10,210	23.541,100	28.249,320
601	0,516	1.177,568		-	-	-
		-	10,000	15,250	23.556,350	28.267,620
602	1,009	1.178,577		-	-	-
		-	10,000	35,570	23.591,920	28.310,304
603	2,548	1.181,125		-	-	-
		-	10,000	39,790	23.631,710	28.358,052
604	1,431	1.182,556		-	-	-

ART: RR20230130232

TERRAPLENAGEM - MAPA DE CUBAÇÃO							
DMT de	200 a 400			**P=**	6,00	**Empolamento:**	20,00%

Estacas	Área		Semi-Distância (m)	Volume		
	Aterro (m²)	Acum. Aterro (m²)		Aterro (m³)	Acum. Aterro (m³)	Empolado (m³)
		-	10,000	29,750	23.661,460	28.393,752
605	1,544	1.184,100		-	-	-
		-	10,000	15,440	23.676,900	28.412,280

ÁREA DEGRADADA A SER RECUPERADA					
Volume Explorado (m³)	Camada Explorada (m)	Volume de Regularização (m³)			
		Larg. (m)	Comp. (m)	Altura (m)	Volume (m³)
27.228,44	1,00	165,01	165,01	0,20	5.445,00