

PROJETO DE ENGENHARIA – ANEXO 3C

RESPONSÁVEL TÉCNICO: ENG° CIVIL MARCIO MACHADO MEDEIROS

Campo Grande – MS, Fevereiro de 2025



AERÓDROMO NO PORTO SÃO PEDRO CORUMBÁ / MS

ANEXO 3C – Cálculo dos Volumes e Notas de Serviço de Terraplenagem

**FEV / 2025
PROJETO EXECUTIVO**

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1.0 – APRESENTAÇÃO

1 APRESENTAÇÃO

1.1 OBJETIVO

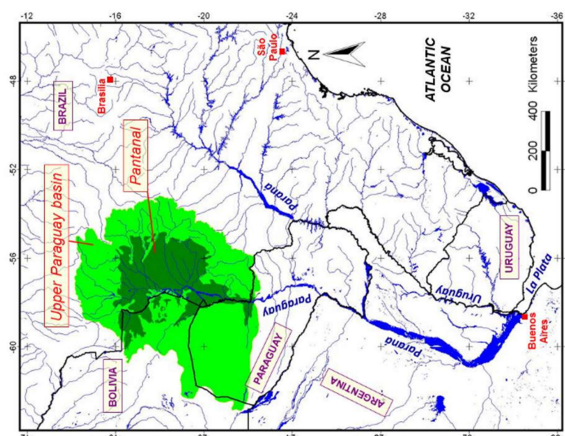
O projeto do aeródromo contempla estudos aprofundados das condições topográficas, geotécnicas e hidrológicas, além da movimentação de terras, pavimentação com revestimento primário e drenagem. Todos esses aspectos foram analisados levando-se em conta as características geológicas e ambientais específicas da região do Pantanal.

A escolha dos materiais e dos métodos construtivos foi orientada pela necessidade de garantir a durabilidade e a funcionalidade da infraestrutura durante todo o ano, mesmo frente à variabilidade do regime hidrológico local.

A estrutura projetada do aeródromo compreende:

- Pista de pouso e decolagem com revestimento primário, dimensionada para suportar as operações previstas;
- Pista de taxiamento (taxiway) e pátio de aeronaves, assegurando a movimentação segura dentro do aeródromo;
- Sistema de drenagem adequado às condições hidrológicas da região, projetado para garantir a eficiência e a segurança da operação em diferentes períodos do ano.

Figura 1 – Mapa de Situação do Pantanal



Fonte: WCS Brasil (2007).

2.0 – COORDENADAS DO EIXO

INFRA-MS

Município: Corumbá/MS

Eixo: PPD

Objeto: Pista de Pouso e Decolagem (PPD)

COORDENADAS PONTO A PONTO

ESTACA			Distância Acum. (m)	Coordenadas	
				UTM (E)	UTM (N)
0	+	0,000	0,00	459344,0078	7991111,4346
1	+	0,000	20,00	459344,5493	7991091,4420
2	+	0,000	40,00	459345,0909	7991071,4493
3	+	0,000	60,00	459345,6324	7991051,4566
3	+	10,000	70,00	459345,9032	7991041,4603
4	+	0,000	80,00	459346,1740	7991031,4640
5	+	0,000	100,00	459346,7157	7991011,4713
6	+	0,000	120,00	459347,2574	7990991,4786
6	+	10,000	130,00	459347,5282	7990981,4823
7	+	0,000	140,00	459347,7990	7990971,4860
8	+	0,000	160,00	459348,3405	7990951,4933
9	+	0,000	180,00	459348,8821	7990931,5006
10	+	0,000	200,00	459349,4236	7990911,5080
11	+	0,000	220,00	459349,9651	7990891,5153
11	+	18,456	238,46	459350,4649	7990873,0664
12	+	0,000	240,00	459350,5067	7990871,5226
13	+	0,000	260,00	459351,0482	7990851,5300
14	+	0,000	280,00	459351,5897	7990831,5373
15	+	0,000	300,00	459352,1313	7990811,5446
16	+	0,000	320,00	459352,6728	7990791,5520
17	+	0,000	340,00	459353,2143	7990771,5593
18	+	0,000	360,00	459353,7559	7990751,5666
19	+	0,000	380,00	459354,2974	7990731,5740
20	+	0,000	400,00	459354,8389	7990711,5813
21	+	0,000	420,00	459355,3805	7990691,5886
22	+	0,000	440,00	459355,9220	7990671,5960
23	+	0,000	460,00	459356,4636	7990651,6033
24	+	0,000	480,00	459357,0051	7990631,6106
25	+	0,000	500,00	459357,5466	7990611,6180
26	+	0,000	520,00	459358,0882	7990591,6253
27	+	0,000	540,00	459358,6297	7990571,6326
28	+	0,000	560,00	459359,1712	7990551,6400
29	+	0,000	580,00	459359,7128	7990531,6473
30	+	0,000	600,00	459360,2543	7990511,6546
31	+	0,000	620,00	459360,7958	7990491,6620
32	+	0,000	640,00	459361,3374	7990471,6693
33	+	0,000	660,00	459361,8789	7990451,6766
34	+	0,000	680,00	459362,4204	7990431,6840
35	+	0,000	700,00	459362,9620	7990411,6913
36	+	0,000	720,00	459363,5035	7990391,6986
37	+	0,000	740,00	459364,0450	7990371,7060
38	+	0,000	760,00	459364,5866	7990351,7133
39	+	0,000	780,00	459365,1281	7990331,7206
40	+	0,000	800,00	459365,6696	7990311,7280

INFRAMS

Município: Corumbá/MS

Eixo: PPD

Objeto: Pista de Pouso e Decolagem (PPD)

COORDENADAS PONTO A PONTO

ESTACA			Distância Acum. (m)	Coordenadas	
				UTM (E)	UTM (N)
41	+	0,000	820,00	459366,2112	7990291,7353
42	+	0,000	840,00	459366,7527	7990271,7426
43	+	0,000	860,00	459367,2942	7990251,7500
44	+	0,000	880,00	459367,8358	7990231,7573
45	+	0,000	900,00	459368,3773	7990211,7646
46	+	0,000	920,00	459368,9188	7990191,7720
47	+	0,000	940,00	459369,4604	7990171,7793
48	+	0,000	960,00	459370,0019	7990151,7866
49	+	0,000	980,00	459370,5435	7990131,7940
50	+	0,000	1000,00	459371,0850	7990111,8013
51	+	0,000	1020,00	459371,6265	7990091,8086
52	+	0,000	1040,00	459372,1681	7990071,8160
53	+	0,000	1060,00	459372,7096	7990051,8233
54	+	0,000	1080,00	459373,2511	7990031,8306
55	+	0,000	1100,00	459373,7927	7990011,8380
56	+	0,000	1120,00	459374,3342	7989991,8453
57	+	0,000	1140,00	459374,8757	7989971,8526
58	+	0,000	1160,00	459375,4173	7989951,8600
59	+	0,000	1180,00	459375,9588	7989931,8673
60	+	0,000	1200,00	459376,5003	7989911,8746
61	+	0,000	1220,00	459377,0419	7989891,8820
62	+	0,000	1240,00	459377,5834	7989871,8893
63	+	0,000	1260,00	459378,1249	7989851,8966
64	+	0,000	1280,00	459378,6665	7989831,9039
65	+	0,000	1300,00	459379,2080	7989811,9113
66	+	0,000	1320,00	459379,7495	7989791,9186
67	+	0,000	1340,00	459380,2911	7989771,9259
68	+	0,000	1360,00	459380,8326	7989751,9333
69	+	0,000	1380,00	459381,3741	7989731,9406
69	+	10,000	1390,00	459381,6449	7989721,9443
70	+	0,000	1400,00	459381,9157	7989711,9479
71	+	0,000	1420,00	459382,4572	7989691,9553
72	+	0,000	1440,00	459382,9988	7989671,9626
72	+	10,000	1450,00	459383,2695	7989661,9663

INFRAMS**Município: Corumbá/MS****Eixo: Taxiway****Objeto: Taxiway****COORDENADAS PONTO A PONTO**

ESTACA			Distância Acum. (m)	Coordenadas	
				UTM (E)	UTM (N)
0	+	0,000	0,00	7990953,2804	459414,3159
0	+	10,000	10,00	7990943,2841	459414,5877
1	+	0,000	20,00	7990933,2877	459414,8594
2	+	0,000	40,00	7990913,2951	459415,4029
2	+	9,000	49,00	7990904,2980	459415,6475
3	+	0,000	60,00	7990893,3025	459415,9464
4	+	0,000	80,00	7990873,3099	459416,4899
5	+	0,000	100,00	7990853,3173	459417,0334
6	+	0,000	120,00	7990833,3247	459417,5769
7	+	0,000	140,00	7990813,3321	459418,1204

3.0 – CÁLCULO DOS VOLUMES DE TERRAPLENAGEM

INFRAMS

Objeto: Pista de Pouso e Decolagem (PPD)

Eixo: PPD

Município: Corumbá/MS

CÁLCULO DE VOLUMES DE TERRAPLENAGEM

ESTACA			DISTÂNCIA ACUMUL. (m)	SEMI DISTÂNCIA (m)	CORTE				ATERRO							COMPENSAÇÃO LATERAL		ORDENADA DE BRUCKNER
					Áreas (m²)		Volumes (m³)		Áreas (m²)		Volumes (m³)					Compens. lateral (m³)	lateral acumulada (m³)	
					Corte	Σ áreas de corte	Corte	Corte acumulado	100% PI (CFT)	áreas de aterro	Compactação a 100% PI							
											Aterro	Aterro acumulado	Fator de empolamento	Aterro empolado	Aterro empolado acumulado			
0	+	0,000	0	0,000	0,00	0,00	0,000	0,000	0,00	0,00	0,000	0,000	1,300	0,000	0,000	0,000	0,000	0,000
1	+	0,000	20	10,000	0,00	0,00	0,000	0,000	0,00	0,00	0,000	0,000	1,300	0,000	0,000	0,000	0,000	0,000
2	+	0,000	40	10,000	0,00	0,00	0,000	0,000	0,00	0,00	0,000	0,000	1,300	0,000	0,000	0,000	0,000	0,000
3	+	0,000	60	10,000	0,00	0,00	0,000	0,000	0,00	0,00	0,000	0,000	1,300	0,000	0,000	0,000	0,000	0,000
3	+	10,000	70	5,000	4,54	4,54	15,120	15,120	0,53	0,00	0,530	1,780	1,300	2,314	2,314	0,000	0,000	0,000
4	+	0,000	80	5,000	9,49	14,03	68,640	83,760	11,70	0,00	11,700	50,890	1,300	66,157	68,471	0,000	0,000	0,000
5	+	0,000	100	10,000	1,00	10,49	90,440	174,190	26,67	16,32	42,990	565,060	1,300	734,578	803,049	0,000	0,000	0,000
6	+	0,000	120	10,000	0,00	1,00	6,640	180,840	35,34	45,96	81,300	1.787,790	1,300	2.324,127	3.127,176	0,000	0,000	13,343
6	+	10,000	130	5,000	0,00	0,00	0,000	180,840	36,34	64,41	100,750	2.696,310	1,300	3.505,203	6.632,379	0,000	0,000	32,865
7	+	0,000	140	5,000	0,00	0,00	0,000	180,840	36,82	74,86	111,680	3.758,000	1,300	4.885,400	11.517,779	0,000	0,000	-390,865
8	+	0,000	160	10,000	0,00	0,00	0,000	180,840	37,86	81,39	119,250	6.066,850	1,300	7.886,905	19.404,684	0,000	0,000	-1.606,955
9	+	0,000	180	10,000	0,00	0,00	0,000	180,840	36,58	85,00	121,580	8.475,090	1,300	11.017,617	30.422,301	0,000	0,000	-2.515,477
10	+	0,000	200	10,000	0,00	0,00	0,000	180,840	36,58	79,01	115,600	10.846,640	1,300	14.100,632	44.522,933	0,000	0,000	-3.577,166
11	+	0,000	220	10,000	0,00	0,00	0,000	180,840	36,58	87,28	123,870	13.240,820	1,300	17.213,066	61.735,999	0,000	0,000	-5.886,014
11	+	18,456	238,456	9,230	0,00	0,00	0,000	180,840	36,58	81,58	118,170	15.474,080	1,300	20.116,304	81.852,303	0,000	0,000	-8.294,254
12	+	0,000	240	0,770	0,00	0,00	0,000	180,840	36,58	80,39	116,980	15.655,650	1,300	20.352,345	102.204,648	0,000	0,000	-10.665,799
13	+	0,000	260	10,000	0,00	0,00	0,000	180,840	36,58	75,07	111,650	17.941,700	1,300	23.324,210	125.528,858	0,000	0,000	-13.059,986
14	+	0,000	280	10,000	0,00	0,00	0,000	180,840	36,47	75,61	112,080	20.179,030	1,300	26.232,739	151.761,597	0,000	0,000	-15.293,242
15	+	0,000	300	10,000	0,00	0,00	0,000	180,840	36,58	82,59	119,180	22.491,250	1,300	29.238,625	181.000,222	0,000	0,000	-15.474,810
16	+	0,000	320	10,000	0,00	0,00	0,000	180,840	36,58	85,87	122,450	24.907,440	1,300	32.379,672	213.379,894	0,000	0,000	-17.760,868
17	+	0,000	340	10,000	0,00	0,00	0,000	180,840	36,58	80,46	117,050	27.302,220	1,300	35.492,886	248.872,780	0,000	0,000	-19.998,194
18	+	0,000	360	10,000	0,00	0,00	0,000	180,840	36,58	76,13	112,720	29.599,720	1,300	38.479,636	287.352,416	0,000	0,000	-22.310,413
19	+	0,000	380	10,000	0,00	0,00	0,000	180,840	36,58	74,60	111,180	31.838,710	1,300	41.390,323	328.742,739	0,000	0,000	-24.726,603
20	+	0,000	400	10,000	0,00	0,00	0,000	180,840	36,58	73,50	110,080	34.051,380	1,300	44.266,794	373.009,533	0,000	0,000	-27.121,384
21	+	0,000	420	10,000	0,00	0,00	0,000	180,840	36,58	78,85	115,440	36.306,350	1,300	47.198,255	420.207,788	0,000	0,000	-29.418,881
22	+	0,000	440	10,000	0,00	0,00	0,000	180,840	36,58	98,14	134,730	38.805,470	1,300	50.447,111	470.654,899	0,000	0,000	-31.657,875
23	+	0,000	460	10,000	0,00	0,00	0,000	180,840	36,58	110,05	146,630	41.618,200	1,300	54.103,660	524.758,559	0,000	0,000	-33.870,545
24	+	0,000	480	10,000	0,00	0,00	0,000	180,840	36,58	100,00	136,590	44.449,800	1,300	57.784,740	582.543,299	0,000	0,000	-36.125,515

INFRAMS

Objeto: Pista de Pouso e Decolagem (PPD)

Eixo: PPD

Município: Corumbá/MS

CÁLCULO DE VOLUMES DE TERRAPLENAGEM

ESTACA			DISTÂNCIA ACUMUL. (m)	SEMI DISTÂNCIA (m)	CORTE				ATERRO							COMPENSAÇÃO LATERAL		ORDENADA DE BRUCKNER	
					Áreas (m²)		Volumes (m³)		Áreas (m²)		Volumes (m³)					Compens. lateral (m³)	lateral acumulada (m³)		
					Corte	Σ áreas de corte	Corte	Corte acumulado	100% PI (CFT)	áreas de aterro	Compactação a 100% PI								
											Aterro	Aterro acumulado	Fator de empolamento	Aterro empolado	Aterro empolado acumulado				
25	+	0,000	500	10,000	0,00	0,00	0,000	180,840	36,16	94,04	130,200	47.117,420	1,300	61.252,646	643.795,945	0,000	0,000	-38.624,634	
26	+	0,000	520	10,000	0,00	0,00	0,000	180,840	36,09	97,01	133,110	49.750,450	1,300	64.675,585	708.471,530	0,000	0,000	-41.437,362	
27	+	0,000	540	10,000	0,00	0,00	0,000	180,840	36,58	96,16	132,740	52.408,940	1,300	68.131,622	776.603,152	0,000	0,000	-44.268,964	
28	+	0,000	560	10,000	0,00	0,00	0,000	180,840	36,58	91,97	128,550	55.021,740	1,300	71.528,262	848.131,414	0,000	0,000	-46.936,586	
29	+	0,000	580	10,000	0,00	0,00	0,000	180,840	36,58	93,15	129,730	57.604,530	1,300	74.885,889	923.017,303	0,000	0,000	-49.569,613	
30	+	0,000	600	10,000	0,00	0,00	0,000	180,840	36,58	103,97	140,550	60.306,610	1,300	78.398,593	1.001.415,896	0,000	0,000	-52.228,101	
31	+	0,000	620	10,000	0,00	0,00	0,000	180,840	36,58	108,68	145,260	63.164,600	1,300	82.113,980	1.083.529,876	0,000	0,000	-54.840,901	
32	+	0,000	640	10,000	0,00	0,00	0,000	180,840	36,58	104,18	140,760	66.024,720	1,300	85.832,136	1.169.362,012	0,000	0,000	-57.423,693	
33	+	0,000	660	10,000	0,00	0,00	0,000	180,840	36,58	92,14	128,730	68.718,740	1,300	89.334,362	1.258.696,374	0,000	0,000	-60.125,771	
34	+	0,000	680	10,000	0,00	0,00	0,000	180,840	36,58	87,02	123,600	71.241,860	1,300	92.614,418	1.351.310,792	0,000	0,000	-62.983,761	
35	+	0,000	700	10,000	0,00	0,00	0,000	180,840	36,43	85,84	122,270	73.700,590	1,300	95.810,767	1.447.121,559	0,000	0,000	-65.843,885	
36	+	0,000	720	10,000	0,00	0,00	0,000	180,840	36,38	85,36	121,750	76.140,800	1,300	98.983,040	1.546.104,599	0,000	0,000	-68.537,900	
37	+	0,000	740	10,000	0,00	0,00	0,000	180,840	36,58	86,46	123,040	78.588,680	1,300	102.165,284	1.648.269,883	0,000	0,000	-71.061,021	
38	+	0,000	760	10,000	0,00	0,00	0,000	180,840	36,58	91,29	127,870	81.097,620	1,300	105.426,906	1.753.696,789	0,000	0,000	-73.519,753	
39	+	0,000	780	10,000	0,00	0,00	0,000	180,840	36,58	91,17	127,750	83.653,810	1,300	108.749,953	1.862.446,742	0,000	0,000	-75.959,968	
40	+	0,000	800	10,000	0,00	0,00	0,000	180,840	36,58	89,91	126,490	86.196,240	1,300	112.055,112	1.974.501,854	0,000	0,000	-78.407,840	
41	+	0,000	820	10,000	0,00	0,00	0,000	180,840	36,58	90,96	127,550	88.736,660	1,300	115.357,658	2.089.859,512	0,000	0,000	-80.916,786	
42	+	0,000	840	10,000	0,00	0,00	0,000	180,840	36,58	88,79	125,380	91.265,870	1,300	118.645,631	2.208.505,143	0,000	0,000	-83.472,976	
43	+	0,000	860	10,000	0,00	0,00	0,000	180,840	36,58	81,50	118,090	93.700,130	1,300	121.810,169	2.330.315,312	0,000	0,000	-86.015,403	
44	+	0,000	880	10,000	0,00	0,00	0,000	180,840	36,58	75,97	112,550	96.006,270	1,300	124.808,151	2.455.123,463	0,000	0,000	-88.555,823	
45	+	0,000	900	10,000	0,00	0,00	0,000	180,840	36,58	66,02	102,600	98.157,000	1,300	127.604,100	2.582.727,563	0,000	0,000	-91.085,030	
46	+	0,000	920	10,000	0,00	0,00	0,000	180,840	36,29	69,28	105,900	100.241,950	1,300	130.314,535	2.713.042,098	0,000	0,000	-93.519,290	
47	+	0,000	940	10,000	0,00	0,00	0,000	180,840	36,58	71,80	108,380	102.384,790	1,300	133.100,227	2.846.142,325	0,000	0,000	-95.825,433	
48	+	0,000	960	10,000	0,00	0,00	0,000	180,840	36,58	74,18	110,760	104.576,230	1,300	135.949,099	2.982.091,424	0,000	0,000	-97.976,160	
49	+	0,000	980	10,000	0,00	0,00	0,000	180,840	36,58	71,82	108,410	106.767,910	1,300	138.798,283	3.120.889,707	0,000	0,000	-100.061,115	
50	+	0,000	1000	10,000	0,00	0,00	0,000	180,840	36,58	68,59	105,180	108.903,690	1,300	141.574,797	3.262.464,504	0,000	0,000	-102.203,952	
51	+	0,000	1020	10,000	0,00	0,00	0,000	180,840	36,58	61,01	97,590	110.930,890	1,300	144.210,157	3.406.674,661	0,000	0,000	-104.395,397	
52	+	0,000	1040	10,000	0,00	0,00	0,000	180,840	36,58	71,18	107,760	112.983,590	1,300	146.878,667	3.553.553,328	0,000	0,000	-106.587,075	

INFRAMS

Objeto: Pista de Pousio e Decolagem (PPD)

Eixo: PDD

Município: Corumbá/MS

CÁLCULO DE VOLUMES DE TERRAPLENAGEM

ESTACA			DISTÂNCIA ACUMUL. (m)	SEMI DISTÂNCIA (m)	CORTE				ATERRO						COMPENSAÇÃO LATERAL		ORDENADA DE BRUCKNER	
					Áreas (m²)		Volumes (m³)		Áreas (m²)		Volumes (m³)				Compens. lateral (m³)	lateral acumulada (m³)		
					Corte	Σ áreas de corte	Corte	Corte acumulado	100% PI (CFT)	áreas de aterro	Compactação a 100% PI							
											Aterro	Aterro acumulado	Fator de empolamento	Aterro empolado				Aterro empolado acumulado
53	+	0,000	1060	10,000	0,00	0,00	0,000	180,840	36,58	75,89	112,470	115.185,790	1,300	149.741,527	3.703.294,855	0,000	0,000	-108.722,849
54	+	0,000	1080	10,000	0,00	0,00	0,000	180,840	36,58	69,75	106,330	117.373,530	1,300	152.585,589	3.855.880,444	0,000	0,000	-110.750,054
55	+	0,000	1100	10,000	0,00	0,00	0,000	180,840	36,41	62,87	99,280	119.429,240	1,300	155.258,012	4.011.138,456	0,000	0,000	-112.802,756
56	+	0,000	1120	10,000	0,00	0,00	0,000	180,840	36,58	64,19	100,770	121.429,760	1,300	157.858,688	4.168.997,144	0,000	0,000	-115.004,954
57	+	0,000	1140	10,000	0,00	0,00	0,000	180,840	36,58	66,70	103,290	123.470,300	1,300	160.511,390	4.329.508,534	0,000	0,000	-117.192,696
58	+	0,000	1160	10,000	0,00	0,00	0,000	180,840	36,58	63,75	100,330	125.506,420	1,300	163.158,346	4.492.666,880	0,000	0,000	-119.248,407
59	+	0,000	1180	10,000	0,00	0,00	0,000	180,840	36,58	64,22	100,810	127.517,810	1,300	165.773,153	4.658.440,033	0,000	0,000	-121.248,921
60	+	0,000	1200	10,000	0,00	0,00	0,000	180,840	36,58	62,31	98,900	129.514,830	1,300	168.369,279	4.826.809,312	0,000	0,000	-123.289,460
61	+	0,000	1220	10,000	0,00	0,00	0,000	180,840	35,59	59,45	95,040	131.454,090	1,300	170.890,317	4.997.699,629	0,000	0,000	-125.325,579
62	+	0,000	1240	10,000	0,00	0,00	0,000	180,840	35,81	58,94	94,750	133.352,000	1,300	173.357,600	5.171.057,229	0,000	0,000	-127.336,974
63	+	0,000	1260	10,000	0,00	0,00	0,000	180,840	36,06	64,17	100,240	135.301,610	1,300	175.892,093	5.346.949,322	0,000	0,000	-129.333,991
64	+	0,000	1280	10,000	0,00	0,00	0,000	180,840	36,34	63,88	100,220	137.306,160	1,300	178.498,008	5.525.447,330	0,000	0,000	-131.273,250
65	+	0,000	1300	10,000	0,00	0,00	0,000	180,840	37,85	72,46	110,300	139.410,580	1,300	181.233,754	5.706.681,084	0,000	0,000	-133.171,161
66	+	0,000	1320	10,000	0,00	0,00	0,000	180,840	37,34	86,06	123,400	141.746,390	1,300	184.270,307	5.890.951,391	0,000	0,000	-135.120,777
67	+	0,000	1340	10,000	0,00	0,00	0,000	180,840	36,48	52,93	89,420	143.865,440	1,300	187.025,072	6.077.976,463	0,000	0,000	-137.125,329
68	+	0,000	1360	10,000	0,40	0,40	2,660	183,490	24,88	12,59	37,480	145.097,330	1,300	188.626,529	6.266.602,992	0,000	0,000	-139.229,748
69	+	0,000	1380	10,000	28,73	29,13	216,780	400,270	5,40	0,00	5,400	145.478,030	1,300	189.121,439	6.455.724,431	0,000	0,000	-141.565,557
69	+	10,000	1390	5,000	47,62	76,35	377,830	778,110	1,16	0,00	1,160	145.508,250	1,300	189.160,725	6.644.885,156	0,000	0,000	-143.684,603
70	+	0,000	1400	5,000	0,00	47,62	158,750	936,850	0,00	0,00	0,000	145.512,120	1,300	189.165,756	6.834.050,912	0,000	0,000	-144.913,839
71	+	0,000	1420	10,000	0,00	0,00	0,000	936,850	0,00	0,00	0,000	145.512,120	1,300	189.165,756	7.023.216,668	0,000	0,000	-145.077,751
72	+	0,000	1440	10,000	0,00	0,00	0,000	936,850	0,00	0,00	0,000	145.512,120	1,300	189.165,756	7.212.382,424	0,000	0,000	-144.730,141
72	+	10,000	1450	5,000	0,00	0,00	0,000	936,850	0,00	0,00	0,000	145.512,120	1,300	189.165,756	7.401.548,180	0,000	0,000	-144.575,269

INFRAMS

Objeto: Taxiway

Eixo: Taxiway

Município: Corumbá/MS

CÁLCULO DE VOLUMES DE TERRAPLENAGEM

ESTACA			DISTÂNCIA ACUMUL. (m)	SEMI DISTÂNCIA (m)	CORTE				ATERRO						COMPENSAÇÃO LATERAL		ORDENADA DE BRUCKNER	
					Áreas (m²)		Volumes (m³)		Áreas (m²)		Volumes (m³)				Compens. lateral (m³)	lateral acumulada (m³)		
					Corte	Σ áreas de corte	Corte	Corte acumulado	100% PI (CFT)	áreas de aterro	Compactação a 100% PI							
											Aterro	Aterro acumulado	Fator de empolamento	Aterro empolado				Aterro empolado acumulado
0	+	0,000	0	0,000	0,000	0,00	0,000	0,000	0,00	0,00	0,000	0,000	1,300	0,000	0,000	0,000	0,000	0,000
0	+	10,000	10	5,000	1,12	1,12	3,740	3,740	0,46	0,00	0,46	0,460	1,300	0,598	0,598	0,000	0,000	0,000
1	+	0,000	20	5,000	0,00	1,12	3,740	7,480	2,14	0,00	2,14	2,600	1,300	3,380	3,978	0,000	0,000	2,216
1	+	12,000	32	6,000	0,00	0,00	0,000	7,480	4,26	0,10	4,36	6,960	1,300	9,048	13,026	0,000	0,000	-5,979
2	+	0,000	40	4,000	0,00	0,00	0,000	7,480	5,80	0,07	5,87	12,830	1,300	16,679	29,705	0,000	0,000	-44,136
2	+	9,000	49	4,500	0,00	0,00	0,000	7,480	18,05	4,11	22,16	34,990	1,300	45,487	75,192	0,000	0,000	-84,864
3	+	0,000	60	5,500	0,00	0,00	0,000	7,480	27,45	9,84	37,29	72,280	1,300	93,964	169,156	0,000	0,000	-203,133
3	+	10,000	70	5,000	0,00	0,00	0,000	7,480	35,41	24,57	59,98	132,260	1,300	171,938	341,094	0,000	0,000	-526,455
4	+	0,000	80	5,000	0,00	0,00	0,000	7,480	34,57	24,07	58,64	190,900	1,300	248,170	589,264	0,000	0,000	-1.008,336
4	+	10,000	90	5,000	0,00	0,00	0,000	7,480	25,19	13,57	38,76	229,660	1,300	298,558	887,822	0,000	0,000	-1.601,414
5	+	0,000	100	5,000	0,00	0,00	0,000	7,480	26,31	14,76	41,07	270,730	1,300	351,949	1.239,771	0,000	0,000	-2.084,963
5	+	10,000	110	5,000	0,00	0,00	0,000	7,480	27,02	17,01	44,03	314,760	1,300	409,188	1.648,959	0,000	0,000	-2.484,059
6	+	0,000	120	5,000	0,00	0,00	0,000	7,480	19,81	8,42	28,23	342,990	1,300	445,887	2.094,846	0,000	0,000	-2.909,452
6	+	0,000	120	0,000	0,00	0,00	0,000	7,480	0,00	0,00	0,00	342,990	1,300	445,887	2.540,733	0,000	0,000	-3.267,792
7	+	0,000	140	10,000	0,00	0,00	0,000	7,480	0,00	0,00	0,00	342,990	1,300	445,887	2.986,620	0,000	0,000	-3.267,797

4.0 – NOTAS DE SERVIÇO DE TERRAPLENAGEM

NOTA DE SERVIÇO DE TERRAPLENAGEM

ESTACA	DIST. ACUMULADA (m)	EIXO			LADO ESQUERDO								LADO DIREITO							
		Cotas			Bordo								Bordo							
		Terreno	Projeto	Verm.	OFFSET		LATERAL			BORDO PISTA			BORDO PISTA			LATERAL			OFFSET	
					Dist.	Cota	%	Dist.	Cota	%	Dist.	Cota	%	Dist.	Cota	%	Dist.	Cota	Dist.	Cota
0+0,000	0,00																			
1+0,000	20,00																			
2+0,000	40,00																			
3+0,000	60,000																			
3+10,000	70,000	91,015	91,015	0,000	-30,000	89,802	-5,00	-30,000	89,802	-2,5	-11,500	90,727	-2,5	11,500	90,727	-5,00	30,000	89,802	31,425	91,228
4+0,000	80,000	90,879	91,260	0,381	-30,000	90,048	-5,00	-30,000	90,048	-2,5	-11,500	90,973	-2,5	11,500	90,973	-5,00	30,000	90,048	31,130	91,177
5+0,000	100,000	90,841	91,751	0,910	-30,000	90,538	-5,00	-30,000	90,538	-2,5	-11,500	91,463	-2,5	11,500	91,463	-5,00	30,000	90,538	30,349	90,887
6+0,000	120,000	90,330	92,242	1,912	-30,000	91,029	-5,00	-30,000	91,029	-2,5	-11,500	91,954	-2,5	11,500	91,954	-5,00	30,000	91,029	30,441	90,735
6+10,000	130,000	90,175	92,487	2,312	-30,000	91,275	-5,00	-30,000	91,275	-2,5	-11,500	92,200	-2,5	11,500	92,200	-5,00	30,000	91,274	30,788	90,750
7+0,000	140,000	90,392	92,487	2,095	-31,280	91,644	-5,00	-31,280	91,644	-2,5	-28,858	91,766	-2,5	11,500	92,199	-5,00	30,000	91,274	30,625	90,858
8+0,000	160,000	90,417	92,487	2,07	-32,128	91,629	-5,00	-32,128	91,629	-2,5	-29,935	91,739	-2,5	11,500	92,199	-5,00	30,000	91,274	31,166	90,497
9+0,000	180,000	90,371	92,487	2,116	-30,000	91,332	-5,00	-30,000	91,332	-2,5	-13,780	92,142	-2,5	11,500	92,199	-5,00	30,000	91,274	32,588	89,549
10+0,000	200,000	90,569	92,487	1,918	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,393	89,679
11+0,000	220,000	90,026	92,487	2,461	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	31,930	89,988
11+18,456	238,456	90,339	92,487	2,148	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,492	89,613
12+0,000	240,000	90,365	92,487	2,122	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,554	89,572
13+0,000	260,000	90,519	92,487	1,968	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,648	89,510
14+0,000	280,000	90,091	92,487	2,396	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,509	89,602
15+0,000	300,000	90,027	92,487	2,46	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,234	89,785
16+0,000	320,000	90,093	92,487	2,394	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,605	89,538
17+0,000	340,000	89,927	92,487	2,56	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,135	89,851
18+0,000	360,000	90,464	92,487	2,023	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	31,950	89,975
19+0,000	380,000	90,220	92,487	2,267	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,104	89,872
20+0,000	400,000	90,028	92,487	2,459	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,104	89,872
21+0,000	420,000	89,544	92,487	2,943	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,431	89,654
22+0,000	440,000	89,275	92,487	3,212	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	31,908	90,003
23+0,000	460,000	89,067	92,487	3,42	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	31,652	90,174

NOTA DE SERVIÇO DE TERRAPLENAGEM

ESTACA	DIST. ACUMULADA (m)	EIXO			LADO ESQUERDO								LADO DIREITO							
		Cotas			Bordo								Bordo							
		Terreno	Projeto	Verm.	OFFSET		LATERAL		BORDO PISTA		BORDO PISTA			LATERAL			OFFSET			
					Dist.	Cota	%	Dist.	Cota	%	Dist.	Cota	%	Dist.	Cota	%	Dist.	Cota		
24+0,000	480,000	89,335	92,487	3,152	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	31,983	89,953
25+0,000	500,000	89,614	92,487	2,873	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,199	89,809
26+0,000	520,000	89,891	92,487	2,596	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,498	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,460	89,635
27+0,000	540,000	89,420	92,487	3,067	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,406	89,670
28+0,000	560,000	89,671	92,487	2,816	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,726	89,457
29+0,000	580,000	89,731	92,487	2,756	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,706	89,471
30+0,000	600,000	89,445	92,487	3,042	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,284	89,752
31+0,000	620,000	89,648	92,487	2,839	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,685	89,485
32+0,000	640,000	89,939	92,487	2,548	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,531	89,587
33+0,000	660,000	90,402	92,487	2,085	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	31,907	90,003
34+0,000	680,000	90,737	92,487	1,750	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,308	89,736
35+0,000	700,000	90,553	92,487	1,934	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,026	89,257
36+0,000	720,000	90,338	92,487	2,149	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,334	89,052
37+0,000	740,000	90,523	92,487	1,964	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,589	88,882
38+0,000	760,000	90,311	92,487	2,176	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,330	89,055
39+0,000	780,000	90,440	92,487	2,047	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,870	89,361
40+0,000	800,000	90,673	92,487	1,814	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,210	89,134
41+0,000	820,000	90,706	92,487	1,781	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,735	88,784
42+0,000	840,000	90,692	92,487	1,795	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,934	88,652
43+0,000	860,000	90,700	92,487	1,787	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	34,117	88,530
44+0,000	880,000	90,749	92,487	1,738	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,987	88,616
45+0,000	900,000	90,921	92,487	1,566	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,602	88,873
46+0,000	920,000	90,661	92,487	1,826	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,808	88,736
47+0,000	940,000	90,548	92,487	1,939	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	34,115	88,531
48+0,000	960,000	90,617	92,487	1,870	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	34,174	88,492
49+0,000	980,000	90,546	92,487	1,941	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	34,135	88,518
50+0,000	1.000,000	90,658	92,487	1,829	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	34,034	88,585

NOTA DE SERVIÇO DE TERRAPLENAGEM

ESTACA	DIST. ACUMULADA (m)	EIXO			LADO ESQUERDO								LADO DIREITO							
		Cotas			Bordo								Bordo							
		Terreno	Projeto	Verm.	OFFSET		LATERAL			BORDO PISTA			BORDO PISTA			LATERAL			OFFSET	
					Dist.	Cota	%	Dist.	Cota	%	Dist.	Cota	%	Dist.	Cota	%	Dist.	Cota	Dist.	Cota
51+0,000	1.020,000	90,838	92,487	1,649	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	34,231	88,454
52+0,000	1.040,000	90,285	92,487	2,202	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	34,186	88,484
53+0,000	1.060,000	89,960	92,487	2,527	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,499	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	33,214	89,132
54+0,000	1.080,000	90,520	92,487	1,967	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,949	89,309
55+0,000	1.100,000	90,612	92,487	1,875	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,082	89,887
56+0,000	1.120,000	90,340	92,487	2,147	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	31,818	90,063
57+0,000	1.140,000	90,081	92,487	2,406	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	32,082	89,887
58+0,000	1.160,000	90,271	92,487	2,216	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	31,973	89,959
59+0,000	1.180,000	89,997	92,487	2,490	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	31,344	90,379
60+0,000	1.200,000	90,143	92,487	2,344	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	30,988	90,616
61+0,000	1.220,000	90,243	92,487	2,244	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	30,413	90,999
62+0,000	1.240,000	90,327	92,487	2,160	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	30,468	90,963
63+0,000	1.260,000	90,307	92,487	2,180	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	11,500	92,199	-5,00	30,000	91,274	30,524	90,925
64+0,000	1.280,000	90,457	92,487	2,030	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	13,734	92,144	-5,00	30,000	91,330	30,601	90,930
65+0,000	1.300,000	90,353	92,487	2,134	-30,000	91,274	-5,00	-30,000	91,274	-2,5	-11,500	92,200	-2,5	29,913	91,739	-5,00	32,103	91,630	33,770	90,518
66+0,000	1.320,000	89,927	92,487	2,560	-30,000	91,275	-5,00	-30,000	91,275	-2,5	-11,500	92,200	-2,5	28,835	91,766	-5,00	31,263	91,645	33,357	90,249
67+0,000	1.340,000	89,513	92,076	2,564	-30,000	90,864	-5,00	-30,000	90,864	-2,5	-11,500	91,789	-2,5	11,500	91,789	-5,00	30,000	90,864	30,867	90,286
68+0,000	1.360,000	89,763	91,255	1,492	-30,000	90,042	-5,00	-30,000	90,042	-2,5	-11,500	90,967	-2,5	11,500	90,967	-5,00	30,000	90,042	30,162	90,204
69+0,000	1.380,000	90,024	90,434	0,410	-30,000	89,221	-5,00	-30,000	89,221	-2,5	-11,500	90,146	-2,5	11,500	90,146	-5,00	30,000	89,221	30,744	89,965
69+10,000	1.390,000	90,023	90,023	0,000	-30,000	88,810	-5,00	-30,000	88,810	-2,5	-11,500	89,735	-2,5	11,500	89,735	-5,00	30,000	88,810	30,744	89,555
70+0,000	1.400,000	89,924	90,023	0,099	-30,000	88,810	-5,00	-30,000	88,810	-2,5	-11,500	89,735	-2,5	11,500	89,735	-5,00	30,000	88,810	30,744	89,555
71+0,000	1.420,000	89,869	90,023	0,154	-30,000	88,810	-5,00	-30,000	88,810	-2,5	-11,500	89,735	-2,5	11,500	89,735	-5,00	30,000	88,810	30,744	89,555
72+0,000	1.440,000	90,180	90,023	-0,157	-30,000	88,810	-5,00	-30,000	88,810	-2,5	-11,500	89,735	-2,5	11,500	89,735	-5,00	30,000	88,810	30,744	89,555
72+10,000	1.450,000	90,318	90,023	-0,295	-30,000	88,810	-5,00	-30,000	88,810	-2,5	-11,500	89,735	-2,5	11,500	89,735	-5,00	30,000	88,810	30,744	89,555

NOTA DE SERVIÇO DE TERRAPLENAGEM

ESTACA	DIST. ACUMULADA (m)	EIXO			LADO ESQUERDO							LADO DIREITO						
		Cotas			Bordo							Bordo						
		Terreno	Projeto	Verm.	OFFSET		LATERAL		BORDO PISTA			BORDO PISTA			LATERAL		OFFSET	
					Dist.	Cota	Dist.	Cota	%	Dist.	Cota	%	Dist.	Cota	Dist.	Cota	Dist.	Cota
0+10,000	10,000	89,985	89,985	0,000	-4,239	90,164	-4,000	89,925	-1,500	-4,000	90,125	-1,500	4,000	90,125	4,000	89,925	4,238	89,767
1+0,000	20,000	89,921	90,225	0,304	-4,059	90,126	-4,000	90,165	-1,500	-4,000	90,365	-1,500	4,000	90,365	4,000	90,165	4,495	89,835
1+12,000	32,000	89,843	90,514	0,671	-4,059	90,415	-4,000	90,454	-1,500	-4,000	90,654	-1,500	4,000	90,654	4,000	90,454	4,495	90,124
2+0,000	40,000	90,103	90,706	0,603	-6,553	90,243	-5,994	90,616	-1,500	-4,994	90,816	-1,500	4,934	90,817	5,934	90,617	6,473	90,258
2+9,000	49,000	90,393	90,922	0,529	-17,600	89,953	-16,518	90,674	-1,500	-15,518	90,874	-1,500	15,149	91,364	16,149	91,164	17,721	90,116
3+0,000	60,000	90,155	90,922	0,767	-24,864	89,762	-23,656	90,567	-1,500	-22,656	90,767	-1,500	22,345	91,472	23,345	91,272	25,100	90,102
3+10,000	70,000	89,953	90,922	0,969	-24,864	89,762	-23,656	90,567	-1,500	-22,656	90,767	-1,500	22,345	91,472	23,345	91,272	25,100	90,102
4+0,000	80,000	90,360	90,922	0,562	-25,531	89,356	-23,715	90,566	-1,500	-22,715	90,766	-1,500	36,008	91,677	37,008	91,477	39,508	89,810
4+10,000	90,000	90,601	90,922	0,321	-25,531	89,356	-23,715	90,566	-1,500	-22,715	90,766	-1,500	36,008	91,677	37,008	91,477	39,508	89,810
5+0,000	100,000	90,442	90,922	0,480	-26,332	88,861	-23,775	90,565	-1,500	-22,775	90,765	-1,500	22,225	91,470	23,225	91,270	24,952	90,119
5+10,000	110,000	90,338	90,922	0,584	-26,332	88,861	-23,775	90,565	-1,500	-22,775	90,765	-1,500	22,225	91,470	23,225	91,270	24,952	90,119
6+0,000	120,000	90,353	90,922	0,569	-12,208	89,952	-11,000	90,757	-1,500	-10,000	90,957	-1,500	22,165	91,469	23,165	91,269	24,598	90,314
7+0,000	120,000	90,201	90,201	0,000	-12,208	89,231	-11,000	90,036	-1,500	-10,000	90,236	-1,500	22,165	90,748	23,165	90,548	24,598	89,593