

## The Appendices 8, 9 and 10

APPENDIX 8 Stratigraphic sections of (a) the Amazon basin, (b) the Acre basin, (c) the Marajó basin and (d) the Maranhão basin

*Apêndice 8 Secções estratigráficas da (a) bacia amazônica, (b) bacia de Acre, (c) bacia de Marajó e (d) bacia de Maranhão*

APPENDIX 9 Analytical data of the Profiles 2-18: Ground Water Laterite and related soils, and the Profiles 19-23: soils with fossil plinthite

*Apêndice 9 Dados analíticos de Perfis 2-18: solos Laterita Hidromórfica e aparentados, e de Perfis 19-23: solos com 'plinthite' fóssil*

APPENDIX 10 Analytical data of the Profiles 24-53: representative profiles of the applied soil classification

*Apêndice 10 Dados analíticos de Perfis 24-53: perfis representantes da classificação de solos aplicada*

Period período	(a) Amazon basin / bacia amazônica		(b) Acre basin / bacia de Acre		(c) Marajó basin / bacia de Marajó		
	PETROBRÁS (1960) Formação formação	SAKOMOTO (1960) Thickness, lithology and formation espessura, litologia e formação	PETROBRÁS (1960) Formação formação	OLIVEIRA (1956) Formation and lithology formação e litologia	PETRI (1954)– Cururú well / poço de Cururú	Period período	Lower boundary and lithology limite inferior e litologia
QUATERNARY Quaternário		70 m – sands, silts, clays 70 m – areias, siltes, argilas				Holocene Holoceno	clays argilas
						Pleistocene Pleistoceno	245 m – silts 245 m – siltes
TERTIARY Terciário		600 m – light red to purplish sand-stones and sandy shales – Barreiras (Tertiary) 600 m – arenitos e folhelhos arenosos, vermelhos-claros a aroxeados – Barreiras (Terciário)	Pebas Ramon	Pebas – dark or light grey sandy shales Pebas – folhelhos arenosos cinzas claros ou escuros		Miocene Mioceno?	740 m – silt-stones; shales 740 m – siltitos; folhelhos
	Alter do Chão	500 m – red and white sandy shales and sand-stones; cherts – Alter do Chão (Cretaceous) 500 m – folhelhos arenosos e arenitos, vermelhos e brancos; calcadonitos – Alter do Chão (Cretáceo)	Rio Branco	Rio Branco – chocolate coloured sand-stones and red shales Rio Branco – folhelhos vermelhos e arenitos côr de chocolate		Eoc.-Oligoc. Eoc.-Oligoc. Eocene? Eoceno?	1692 m – medium to coarse grained sand-stones 1692 m – arenitos de textura média a grosseira 2020 m – silt-stones; shales 2020 m – siltitos; folhelhos 2580 m – fine grained sand-stones 2580 m – arenitos de textura fina
CRETACEOUS Cretáceo			Divisor Rio Azul Môa	Rio Acre – light grey gypsiferous shales, concr. Rio Acre – folhelhos gipsíferos cinzas claros, concr. Divisor – white sand-stones Divisor – arenitos brancos Rio Azul – shales and lime-stones Rio Azul – folhelhos e calcáreos Môa – white sand-stones Môa – arenitos brancos			
JURASSIC Jurásico		Basalt and diabase basalto e diabásio		Basalt and diabase basalto e diabásio			
LATE CARBONIFEROUS Carbonífero Superior	Nova Olinda Itaituba	1500 m – anhydrite; rock salt; diabase; reddish and greenish shales – Nova Olinda 1500 m – anidrita; salgema; diabásio; folhelhos avermelhados e esverdeados – Nova Olinda 450 m – lime-stones; anhydrite; shales – Itaituba 450 m – calcáreos; anidrita; folhelhos – Itaituba					
EARLY CARBON. Carb. Inferior	Monte Alegre	200 m – white sand-stones – M. Alegre 200 m – arenitos brancos – M. Alegre					
DEVONIAN Devoniano	Curuá Maicurú	350 m – black and grey shales – Curuá 350 m – folhelhos pretos e cinzentos – Curuá 350 m – sand-stones and shales – Maicurú 350 m – arenitos e folhelhos – Maicurú					
SILURIAN Siluriano	Trombetas	50 m – slabby sand-stones – Trombetas 50 m – arenitos lodosos – Trombetas					
PRE-SILURIAN Pre-siluriano	Uatumá		Formosa				
PRE-CAMBRIAN Pre-cambriano		Igneous and metamorphic rocks rochas ígneas e metamórficas					Igneous and metamorphic rocks rochas ígneas e metamórficas

(d) Maranhão basin / *bacia de Maranhão*

Period <i>período</i>	PETROBRÁS (1960)			CAMPBELL (1949)	BARBOSA (1962)
	Formation <i>formação</i>	Thickness (m) <i>espessura</i>	Lithology <i>litologia</i>		
QUATERNARY <i>Quaternário</i>	Undifferentiated <i>não diferenciado</i>	0-30	Beach and stream deposits <i>sedimentos fluviais e marinhos</i>		
	Perizes	0-130	Clays <i>argilas</i>		
TERTIARY- PLIOCENE <i>Terciário- Plioceno</i>	Undifferentiated <i>não diferenciado</i>	0-60	Continental sand-stones, silt-stones and shales <i>arenitos, siltitos e folhelhos continentais</i>	Barreiras	
	São Luis	0-55	Continental sand-stones, silt-stones and shales <i>arenitos, siltitos e folhelhos continentais</i>		
TERTIARY <i>Terciário</i>	Pirabas	0-20	Marine lime-stones and shales <i>calcários e folhelhos marinhos</i>	Pirabas	
LATE CRETACEOUS TO TERTIARY <i>Cretáceo Superior a Terciário</i>	Itapecurú	35-250	Continental sand-stones, silt-stones and shales, with locally some marine shales and lime-stones <i>arenitos, siltitos e folhelhos continentais, com algumas ocorrências locais de calcários e folhelhos marinhos</i>	Serra Negra	Urucuia
	Codó	5-40	Fresh to brackish water bituminous shales, and lime-stones <i>folhelhos betuminosos de água doce a salobra, e calcários</i>	Codó	Codó
CRETACEOUS <i>Cretáceo</i>	Corda	20-65	Fluvatile sand-stones and shales <i>arenitos e folhelhos fluviais</i>	Grajaú	Corda { Grajaú Itagua- tins
JURASSIC <i>Jurásico</i>	Diabase	0-100	Dikes, plugs, sills and flows <i>diques, tampões, sills e derrames</i>	Diabase	
JURA-TRIASSIC <i>Jura-Triásico</i>	Pastos Bons { Sambaíba Motuca	60-225	Continental and partly marine sand-stones, silt- stones, shales and lime- stones <i>arenitos, siltitos, folhelhos e calcários continentais e parcialmente marinhos</i>	Sambaíba	Sambaíba
				Motuca { Pastos Bons Caxias	Motuca { Pastos Bons Caxias

(d) Maranhão basin (continued) / *bacia de Maranhão (continuado)*

Period <i>período</i>	PETROBRÁS (1960)			CAMPBELL (1949)	BARBOSA (1962)
	Formation <i>formação</i>	Thickness (m) <i>espessura</i>	Lithology <i>litologia</i>		
LATE CARBONI- FEROUS <i>Carbonífero Superior</i>	Pedra de Fogo	0-350	Continental and some shallow marine lime-stones, silt-stones, sand-stones and cherts; locally gypsum and anhydrite <i>calcários, siltitos, arenitos e calcadonitos, continentais e alguns marinhos rasos; ocorrências locais de gipsita e anidrita</i>		Pedra de Fogo
	Piauí	30-330	Shallow marine sand- stones, silt-stones, shales and lime-stones <i>arenitos, siltitos, folhelhos e calcários marinhos rasos</i>	Piauí	Piauí Potí
EARLY CARBONI- FEROUS <i>Carbonífero Inferior</i>	Potí		Continental and some shallow marine sand-stones, with shales and silt-stones <i>arenitos continentais e alguns marinhos, com folhelhos e siltitos</i>	Cam- po Mai- or	
LATE DEVONIAN <i>Devoniano Superior</i>	Longá	120-528	Dark grey to black shallow marine shales <i>folhelhos marinhos rasos, cinzentos a pretos</i>	Longá	Longá { Superior Tillito Caro- lina Inferior
MIDDLE DEVONIAN <i>Devoniano Médio</i>	Cabeças	200-450	Fluvatile and some shal- low marine sand-stones <i>arenitos fluviais e alguns marinhos rasos</i>		Cabe- ças { Ipiranga Oeiras Passa- gem
	Pimenteiras	90-270	Shallow marine shales and silt-stones, with some sand- stones <i>siltitos e folhelhos marinhos rasos, com alguns arenitos</i>		Pimenteiras
EARLY DEVONIAN <i>Devoniano Inferior</i>	Serra Grande	130-750	Continental sand-stones <i>arenitos continentais</i>		Serra Grande
PRE-CAMBRIAN <i>Pre-cambriano</i>			Igneous and metamorphic rocks <i>rochas ígneas e metamórficas</i>		

**Notes Appendix 9 | chamadas Apêndice 9**

- \* estimated by graphical interpolation on summation curve | *estimado por interpolação gráfica em curva cumulativa.*
- + (Profile 5 | *Perfil 5*): see sample 96-2 of Table 7 | *veja amostra 96-2 da Tabela 7.*
- ++ (Profile 5 | *Perfil 5*): see sample 96-5 of the Tables 7 and 8, Figs. 14a-e and Photo 10 | *veja amostra 96-5 das Tabelas 7 e 8, Figuras 14a-e e Foto 10.*
- +++ (Profile 18 | *Perfil 18*): see sample 178-4 of the Tables 7 and 8 | *veja amostra 178-4 das Tabelas 7 e 8.*

Granulometric composition of fine earth  
composição granulométrica da terra fina

No. prof. descr. de perfil	Horizon zone	Depth profundidade cm	coarse sand areia grossa		silt silte		clay argila	silt-Int. /silt-Int. clay/argila	silt-USA /silt-USA clay/argila	"Natural" clay argila "natural"	Fine earth attacked by: ataque da terra fina por: H <sub>2</sub> SO <sub>4</sub> , d = 1.47				SiO <sub>2</sub> :Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub> :(Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> )	Moisture equivalent equivalente de umidade g/100 g M.E.	C org. %	pH H <sub>2</sub> O	Active acidity acidez ativa m.e./100g (Al) <sup>+</sup>	Potential cation exchange capacity capacidade total de troca m.e./100g T	Base saturation saturação de bases % V	Textural ratio relação textural B/A
			% 2.0-0.2 mm co.s.	% 0.2-0.05 mm f.s.	% 0.05-0.02 mm si.	% 0.02-0.002 mm si.					% < 0.002 mm c.	% SiO <sub>2</sub>	% Al <sub>2</sub> O <sub>3</sub>	% Fe <sub>2</sub> O <sub>3</sub>									
2	A <sub>1</sub>	0-10	6.5	77.4	6.0	10.1	0.58	1.29*	7.0	5.19	4.18	0.69	0.33	2.11	1.91	11.5	0.51	5.4	2.04	2.28	29.4	2.90	
	A <sub>2</sub>	10-30	6.0	69.2	8.1	16.7	0.49	1.02*	10.9	8.11	6.69	1.09	0.40	2.06	1.87	17	0.47	4.8	2.00	2.36	14.4		
	B <sub>1</sub>	30-60	6.1	59.1	6.9	28.9	0.24	0.45*	13.6	13.10	10.98	1.98	0.52	2.03	1.82	13	0.32	4.8	4.00	2.38	15.1		
	B <sub>2g</sub>	60-110	2.9	38.1	10.2	48.8	0.21	0.33*	0.6	22.57	18.89	3.79	0.67	2.03	1.80	16	0.21	5.0	5.61	3.98	8.0		
3	A <sub>1</sub>	0-10	2.5	72.5	7.1	17.9	0.40	0.73*	5.1	7.81	6.34	2.45	0.41	2.09	1.68	19.2	1.12	4.6	2.04	5.79	8.5	1.86	
	A <sub>2</sub>	10-40	2.5	67.7	8.2	21.6	0.38	0.65*	6.3	9.22	8.42	2.84	0.47	1.86	1.53	20.2	0.53	4.8	2.00	3.58	8.9		
	B <sub>21g</sub>	40-150	2.1	50.9	9.9	37.1	0.27	0.40*	0.2	18.27	14.62	5.76	0.58	2.12	1.70	28.7	0.34	5.3	4.00	5.07	6.5		
	B <sub>22g</sub>	150-225	2.4	49.6	11.5	36.5	0.32	0.44*	0	20.12	15.45	3.49	0.58	2.21	1.93	29.5	0.15	5.4	5.61	7.36	4.8		
4	A <sub>1</sub>	0-40	43.5	28.7	20.9	6.9	1.60*	3.03	2.0	2.75	2.21	0.20	0.26	2.11	1.99	11.5	1.26	4.9	0.81	5.67	13.6	2.16	
	A <sub>2</sub>	40-100	32.5	28.1	25.5	13.9	1.08*	1.83	10.5	5.80	5.19	0.40	0.46	1.90	1.81	14.3	0.18	4.6	0.64	2.34	19.2		
	AB	100-150	30.1	23.6	24.9	21.4	0.70*	1.16	11.9	9.19	7.78	0.81	0.60	2.01	1.88	17.2	0.17	4.7	1.29	2.85	17.2		
	B <sub>21g</sub>	150-220	18.7	18.4	26.3	36.6	0.52*	0.72	0	16.76	13.17	2.03	0.80	2.16	1.97	24.7	0.09	5.1	3.17	4.75	9.7		
	B <sub>22g</sub>	220-330	26.3	17.8	21.8	34.1	0.38*	0.64	0	16.69	13.34	3.65	0.77	2.13	1.81	23.2	0.11	5.1	2.76	4.42	10.6		
5	A <sub>p</sub>	0-15	40	37	17	1	5	0.20	3.60								1.10	4.5		5.74		3.78	
	A <sub>1</sub> <sup>+</sup>	15-70	35	35	21	1	8	0.13	2.75								0.44	5.2		4.20			
	A <sub>2</sub>	70-110	36	37	18	1	8	0.13	2.38								0.20	5.2		2.55			
	B <sub>21g</sub>	120-140	33	29	17	1	20	0.05	0.90								0.15	5.1		3.93			
	B <sub>22g</sub> <sup>++</sup>	150-170	31	14	12	10	33	0.30	0.67								0.15	4.9		7.37			
6	A <sub>1</sub>	0-5	89	5	6	0	-	-									2.0	5.4		0.8		11.3	
	A <sub>21</sub>	5-15	95	3	2	0	-	-									0.3	5.6		0.4			
	A <sub>22</sub>	15-30	92	7	0	1	0	7.00									0.2	5.4		0.4			
	B <sub>2g</sub>	40-100	58	8	0	34	0	0.24									0.2	5.1		9.8			
	B <sub>3g</sub>	100-140	50	7	37	6	6.16	7.33									0.1	5.3		11.5			
7	A <sub>1</sub>	0-30	32.3	41.1	10.1	16.5	0.61	1.15*	5.0	7.68	6.87	0.83	0.41	1.90	1.76	25.0	3.33	4.6	3.04	16.47	3.2	< 1.84	
	A <sub>2</sub>	30-90	37.0	33.4	7.7	21.9	0.35	0.55*	11.8	9.87	8.13	1.22	0.48	2.06	1.88	16.5	0.22	4.9	1.56	3.43	11.1		
	B <sub>2g</sub>	120-260	36.9	26.2	7.1	29.8	0.24	0.37*	0	14.67	11.75	2.84	0.51	2.12	1.84	20.6	0.09	5.0	2.48	3.66	10.9		
	B <sub>3g</sub>	260-300	39.1	34.7	4.0	22.8	0.18	0.31*	0	10.76	8.85	1.61	0.47	2.07	1.85	17.1	-	4.9	1.08	2.16	25.5		
8	A <sub>1</sub>	0-3	11.8	22.4	12.5	53.3	0.25	0.34*	24.0	23.53	21.65	1.03	0.94	1.85	1.79	28.5	2.35	5.3	0.25	9.86	37.6	1.31	
	A <sub>2</sub>	3-20	7.1	15.2	6.4	71.3	0.09	0.15*	28.5	28.58	27.26	2.05	1.12	1.78	1.70	27.5	1.00	4.7	0.70	5.50	25.5		
	B <sub>21g</sub>	20-100	3.8	9.8	4.3	82.1	0.05	0.07*	0	33.49	32.08	2.46	0.93	1.77	1.69	29.6	0.36	5.2	0.66	4.23	27.2		
	B <sub>22g</sub>	100-150	2.6	9.1	6.8	81.5	0.08	0.11*	0	35.82	34.82	2.36	1.18	1.75	1.68	31.0	0.27	5.3	0.45	4.27	27.9		

		Granulometric composition of fine earth <i>composição granulométrica da terra fina</i>																					
No. prof. descr. de perfil	Hori-zon de hori-zonte	Depth profun-didade cm	coarse sand	fine sand	silt	silt	clay	silt-int./silt-int.	silt-USA/silt-USA	'Natural' clay	Fine earth attacked by: <i>ataque da terra fina por:</i> H <sub>2</sub> SO <sub>4</sub> , d = 1.47				SiO <sub>2</sub> :Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub> :(Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> )	Moisture equivalent	C	pH	Active acidity	Potential cation exchange	Base saturation	Textural ratio
			areia grossa %	areia fina %	silte %	silte %	argila %	clay/argila	clay/argila	'natural' clay %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	Fe <sub>2</sub> O <sub>3</sub> %	TiO <sub>2</sub> %	Ki	Kr	g/100 g M.E.	%	H <sub>2</sub> O	m.e./100g (Al) <sup>+</sup>	m.e./100g T	% V	B/A
9	A <sub>1</sub>	0-5	11.9	69.8	3.6	14.7	0.24	0.90*	3.2	6.13	4.63	1.41	0.96	2.25	1.89	10.2	0.34	4.1	0.73	2.77	19.9	2.17	
	A <sub>2</sub>	5-40	6.1	58.8	3.0	32.1	0.09	0.39*	15.4	14.88	11.24	2.62	1.05	2.25	1.96	16.4	0.23	4.5	0.49	1.91	26.7		
	B <sub>1g</sub>	40-80	4.9	42.9	3.7	48.5	0.08	0.21*	0	21.46	17.69	3.44	1.01	2.06	1.84	21.4	0.11	4.6	0.49	1.36	40.4		
	B <sub>2g</sub>	80-150	4.9	35.3	6.7	53.1	0.13	0.24*	0	24.18	21.26	3.03	1.04	1.93	1.77	22.4	0.01	4.9	0.24	1.17	57.3		
10	A <sub>1</sub>	0-70	8.2	88.0	1.8	2.0	0.90	2.50*	0.2	0.52	1.02	0.70	0.17	0.87	0.60	5.0	0.43	5.7	0.24	1.02	42.0	1.76	
	A <sub>2</sub>	70-140	7.0	84.6	2.6	5.8	0.45	1.21*	3.6	1.81	3.03	0.60	0.20	1.02	0.90	7.9	0.19	5.6	0.24	1.00	40.0		
	B <sub>1g</sub>	140-170	6.5	82.4	3.4	7.7	0.44	0.91*	0.2	3.48	3.39	1.61	0.25	1.75	1.34	10.8	0.10	5.2	0.24	0.88	54.5		
	B <sub>2g</sub>	170-230	5.7	85.5	2.8	6.0	0.47	1.17*	0.4	2.81	2.51	1.61	0.25	1.90	1.35	8.5	0.05	5.3	0.40	0.92	45.5		
	C <sub>g</sub>	230-325	9.2	84.6	2.0	4.2	0.48	1.20*	2.6	2.55	2.15	0.40	0.17	2.02	1.80	5.9	0.06	5.1	0.52	0.99	39.5		
11	A <sub>1</sub>	0-30	0.3	69.0	13.1	17.6	0.74	1.31*	5.1	8.17	6.04	0.72	0.43	2.30	2.14	29.4	3.13	4.7	3.36	12.34	4.9	1.78	
	A <sub>2</sub>	30-60	0.1	48.8	9.9	41.2	0.24	0.39*	0.4	17.25	14.28	1.54	0.62	2.05	1.92	26.2	0.42	4.8	4.92	5.85	12.0		
	B <sub>2g</sub>	60-270	3.5	26.3	17.9	52.3	0.34	0.35*	0.8	22.61	18.07	7.60	0.66	2.13	1.68	30.3	0.21	4.8	7.80	8.89	10.9		
13	A <sub>1</sub>	0-10	0.1	88.2	7.8	3.9	2.00	4.10*	0.4	3.47	1.64	0.50	0.20	3.59	3.01	13.8	1.08	5.2	0.28	2.93	45.1	2.59	
	A <sub>2</sub>	10-25	0.2	85.7	8.5	5.6	1.52	2.50*	2.6	3.76	2.69	0.80	0.26	2.38	2.00	12.9	0.35	5.1	0.52	1.52	47.4		
	AB <sub>g</sub>	25-60	0.3	71.4	9.6	18.7	0.51	0.68*	12.6	7.64	5.85	2.03	0.37	2.22	1.82	18.0	0.21	5.6	1.71	3.14	35.4		
	B <sub>2g</sub>	60-225	0.3	59.4	10.3	30.0	0.34	0.60*	15.8	13.43	10.21	3.48	0.47	2.24	1.84	22.0	0.15	5.3	4.48	5.49	21.5		
14	A <sub>1</sub>	0-50	38.3	34.0	21.9	5.8	1.90*	3.78	1.4	2.86	1.69	0.10	0.25	2.87	2.77	9.6	0.86	4.3	1.47	5.09	13.6	2.48	
	A <sub>2</sub>	50-140	41.9	28.2	23.0	6.9	1.89*	3.33	4.6	3.12	2.32	0.20	0.27	2.29	2.17	9.7	0.16	4.7	1.13	2.66	28.9		
	AB	140-175	37.6	29.0	22.5	10.9	1.10*	2.06	7.1	4.88	3.36	0.61	0.29	2.47	2.22	12.3	0.14	4.5	1.66	3.39	27.1		
	B <sub>2g</sub>	175-250	22.2	20.3	29.4	28.1	0.71*	1.05	2.3	12.43	8.39	2.48	0.42	2.52	2.12	19.5	0.09	4.8	2.69	7.78	53.1		
	B <sub>3g</sub>	250-320	8.6	21.0	45.6	24.8	1.29*	1.84	0.4	11.22	8.78	3.12	0.45	2.17	1.77	22.0	0.06	4.7	0.88	11.39	80.3		
15	A <sub>1</sub>	0-5	10.5	39.6	38.9	11.0	1.90*	3.54	3.0	5.52	2.44	1.62	0.62	3.85	2.71	14.9	1.80	4.6	0.45	8.16	46.3	2.53	
	A <sub>2</sub>	5-30	8.2	34.0	40.7	17.1	1.23*	2.38	9.5	7.80	4.76	3.85	0.54	2.78	1.84	14.9	0.68	4.8	1.83	4.62	22.5		
	B <sub>1g</sub>	30-50	4.3	18.9	43.9	32.9	0.85*	1.33	16.0	15.84	9.71	6.16	0.47	2.77	1.97	23.6	0.36	4.7	3.95	7.81	18.3		
	B <sub>2g</sub>	50-80	2.6	12.5	46.8	38.1	0.81*	1.23	9.3	19.37	12.15	7.24	0.67	2.71	1.96	27.6	0.26	4.7	5.76	9.32	16.4		
	B <sub>3g</sub>	80-100	1.3	13.4	54.6	30.7	1.24*	1.78	1.4	17.60	11.09	4.11	0.47	2.70	2.18	26.4	0.19	4.4	4.66	9.99	37.3		
	C <sub>g</sub>	100-120	1.6	15.6	52.0	30.8	1.17*	1.69	7.6	16.67	10.69	4.72	0.54	2.65	2.07	24.6	0.15	4.9	4.36	7.79	22.6		
16	A <sub>1</sub>	0-4	23.1	36.7	22.6	17.6	0.63*	1.28	5.5	9.75	5.68	2.45	1.61	2.92	2.29	23.9	2.42	5.0	0.24	13.25	44.8	2.74	
	A <sub>2</sub>	4-20	24.7	38.4	21.1	15.8	0.70*	1.34	9.5	8.30	5.51	3.02	1.60	2.56	1.90	27.2	0.35	5.0	0.73	4.15	32.5		
	B <sub>2g</sub>	20-90	12.4	20.5	21.4	45.7	0.27*	0.47	40.4	21.66	15.48	5.34	1.49	2.38	1.95	16.6	0.39	5.3	1.81	11.77	62.2		
	B <sub>3g</sub>	90-130	18.4	21.6	19.3	40.7	0.29*	0.47	33.3	18.30	13.54	4.48	1.42	2.30	1.90	24.3	0.33	5.3	2.86	8.12	40.3		

Granulometric composition of fine earth  
composição granulométrica da terra fina

No. prof. descr. de perfil	Horizon zone	Depth profundidade cm	coarse sand areia grossa		silt silte		clay argila	silt-Int./silt-Int. clay/argila	silt-USA/silt-USA clay/argila	'Natural' clay argila 'natural' n.c.	Fine earth attacked by: ataque da terra fina por: H <sub>2</sub> SO <sub>4</sub> , d = 1.47				SiO <sub>2</sub> :Al <sub>2</sub> O <sub>3</sub> Ki	SiO <sub>2</sub> :(Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> ) Kr	Moisture equivalent equivalente de umidade g/100 g M.E.	C org. %	pH H <sub>2</sub> O	Active acidity acidez ativa m.e./100g (Al) <sup>+</sup>	Potential cation exchange capacity capacidade total de troca m.e./100g T	Base saturation saturação de bases % V	Textural ratio relação textural B/A
			% 2.0-0.2 mm co.s.	% 0.2-0.05 mm f.s.	% 0.05-0.02 mm si.	% 0.02-0.002 mm si.					% < 0.002 mm c.	% SiO <sub>2</sub>	% Al <sub>2</sub> O <sub>3</sub>	% Fe <sub>2</sub> O <sub>3</sub>									
17	A <sub>1</sub>	0-15	3.5	78.5	9.9	8.1	1.22	2.22*	4.2	4.43	1.95	1.21	0.56	3.86	2.76	19.6	0.73	5.0	0.73	2.54	28.7		
18	A <sub>1</sub>	0-15	0.1	27.9	19.8	52.2	0.38	0.54*	23.0	25.99	14.25	4.52	0.52	3.10	2.58	38.5	1.81	4.4	7.12	15.80	33.3		
	A <sub>2g</sub>	15-20	0.7	49.3	19.8	30.2	0.66	1.09*	12.8	16.70	9.01	3.50	0.48	3.15	2.53	31.6	0.93	4.5	4.76	10.55	27.5		
	B <sub>1</sub> -C	20-55	0.3	28.8	21.5	49.4	0.44	0.61*	22.7	21.53	14.15	6.04	0.55	2.59	2.03	33.9	0.92	4.4	8.32	12.29	15.1	1.25	
	B <sub>21</sub> -C <sup>+++</sup>	55-100	0.9	24.8	18.5	55.4	0.33	0.49*	7.1	25.76	18.32	6.34	0.69	2.59	1.96	32.0	0.28	4.3	10.30	12.42	14.5		
	B <sub>22</sub> -C	100-180	0.9	28.8	20.2	50.1	0.40	0.60*	8.8	22.76	16.60	4.21	0.65	2.33	2.01	30.4	0.19	4.2	7.52	10.65	22.6		
19	A <sub>1</sub>	0-10	8.5	22.3	14.9	54.3	0.27	0.40*	23.6	24.7	23.19	3.10	1.15	1.77	1.63	32.0	3.44	4.5	1.20	13.70	23.9		
	A <sub>2</sub>	10-70	4.4	13.8	11.6	70.2	0.17	0.24*	32.8	29.21	30.94	3.29	1.29	1.61	1.50	31.6	0.85	4.6	0.91	5.80	11.0		
	B <sub>1</sub>	70-120	4.7	15.2	15.4	64.7	0.24	0.31*	0	32.42	36.42	4.51	1.23	1.51	1.40	32.1	0.34	4.9	0.37	3.97	17.1	1.00	
	B <sub>2</sub> -B <sub>3</sub>	120-350	6.9	12.8	20.4	59.9	0.34	0.45*	0	31.88	36.09	4.06	1.31	1.50	1.40	30.5	0.13	5.2	0.24	2.91	16.2		
	C	350-550	2.2	14.5	28.4	54.9	0.51	0.64*	0	32.42	31.19	2.03	1.27	1.77	1.70	32.5	0.06	5.0	0.45	2.46	17.5		
20	A <sub>1</sub>	0-10	31.6	36.7	9.8	21.9	0.45	0.73*	4.5	10.43	7.82	5.51	0.88	2.27	1.58	17.3	2.75	4.7	0.53	9.29	33.9		
	A <sub>2</sub>	10-80	17.5	23.7	4.5	54.3	0.08	0.15*	23.6	21.66	19.25	9.16	1.35	1.91	1.47	23.8	0.49	4.6	1.43	3.89	16.2		
	B <sub>2</sub>	80-160	10.3	24.7	9.4	55.6	0.17	0.25*	0	26.82	22.66	12.91	1.35	2.01	1.48	24.4	0.17	4.5	1.59	3.31	19.9	1.46	
	B <sub>3</sub>	160-250	16.5	31.4	6.5	45.6	0.14	0.24*	0	20.17	16.89	5.15	1.10	2.03	1.70	19.8	0.10	4.8	1.30	2.22	18.0		
21	A <sub>1</sub>	0-5	33.8	41.5	7.6	17.1	0.44	0.82*	3.7	7.95	5.87	2.84	0.53	2.30	1.76	16.7	3.63	4.1	1.10	12.82	20.4		
	A <sub>2</sub>	5-80	13.8	37.3	9.2	39.7	0.23	0.38*	22.8	17.18	15.49	3.66	0.89	1.88	1.64	20.9	0.71	4.6	1.10	5.97	11.2		
	B <sub>1</sub> -B <sub>2</sub>	80-220	13.0	26.4	7.9	52.7	0.15	0.23*	0	26.55	25.26	4.72	1.04	1.79	1.60	25.1	0.29	4.7	0.73	3.65	16.4	1.84	
	B <sub>3</sub>	220-280	24.5	19.8	13.1	42.6	0.31	0.40*	0	25.42	23.68	3.42	0.88	1.82	1.67	24.8	0.09	5.0	0.44	2.29	20.5		
23	A <sub>1</sub>	0-15	36.4	24.2	11.4	28.0	0.18*	0.41	9.1	12.17	10.78	2.63	0.92	1.92	1.53	17	1.08	4.8	1.34	4.93	11		
	A <sub>2</sub>	15-30	32.0	25.0	10.8	32.2	0.17*	0.34	13.6	12.87	12.07	3.03	1.02	1.81	1.56	17	0.69	4.8	1.05	3.47	10		
	B <sub>1</sub>	30-50	27.9	20.9	9.2	42.0	0.12*	0.22	0	16.25	15.28	3.24	1.04	1.81	1.60	22	0.40	5.0	0.77	2.24	16	1.60	
	B <sub>21</sub>	50-75	23.0	19.1	8.7	49.2	0.10*	0.18	0	18.63	17.38	3.85	1.11	1.82	1.59	24	0.40	5.2	0.39	2.23	17		
	B <sub>22</sub>	75-110	20.3	18.7	7.2	53.8	0.08*	0.13	0	20.45	18.95	4.06	1.11	1.83	1.63	25	0.30	5.3	0.33	2.07	18		

No. prof. descr. de perfil	No. lab. IQA	Hori- zon hori- zonte	Depth profun- didade cm	Granulometric composition of fine earth <i>composição granulométrica da terra fina</i>											Index of structure grau de flocculação	Apparent bulk density massa espec. aparente g/cm <sup>3</sup> a.b.d.	Real bulk density massa espec. real g/cm <sup>3</sup> r.b.d.	Fine earth attacked by: <i>ataque da terra fina por:</i> H <sub>2</sub> SO <sub>4</sub> , d = 1,47					SiO <sub>2</sub> :Al <sub>2</sub> O <sub>3</sub> Ki	SiO <sub>2</sub> : (Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> ) Kr	
				Coarse gravel calhaus % > 20 mm co.g.	Fine gravel cascalho % 20-2.0 mm f.g.	Fine earth terra fina % < 2.0 mm f.e.	coarse sand areia grossa % 2.0-0.2 mm co.s.	fine sand areia fina % 0.2-0.05 mm f.s.	silt silte % 0.05-0.02 mm si.	silt silte % 0.02-0.002 mm si.	clay argila % < 0.002 mm c.	'Natural' clay argila 'natural' % n.c.	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %				Fe <sub>2</sub> O <sub>3</sub> %	TiO <sub>2</sub> %	P <sub>2</sub> O <sub>5</sub> %					
<b>KAOLINITIC YELLOW LATOSOL (Ortho), very heavy textured</b>																									
24	32,681	A <sub>1</sub>	0-2	0	0.1	99.9	4.0	11.2	10.2	74.6	23.3	69							28.80	25.54	8.29	1.02	0.05	1.92	1.59
	32,682	A <sub>2</sub>	2-20	0	0.2	99.8	1.9	8.0	7.2	82.9	33.0	60							30.82	29.60	8.74	0.89	0.03	1.77	1.49
	32,683	B <sub>2</sub>	20-60	0	0	100	0.9	5.8	4.8	88.5	0	100							33.66	32.42	9.99	0.83	0.03	1.77	1.48
	32,684	B <sub>3</sub>	60-150	0	0.1	99.9	0.7	13.7	11.7	73.9	0	100							33.85	32.94	10.38	0.77	0.03	1.75	1.45
	32,685*	C	150-250	0	0	100	0.6	10.2	14.2	75.0	0	100							32.50	33.40	9.54	1.01	0.03	1.65	1.40
* 78% hyaline quartz grains, some of them rolled, others corroded; 20% sanguineous iron concretions and cream-coloured clay concretions; 2% vegetal detritus parts; traces of muscovite, turmaline and magnetite																									
<b>KAOLINITIC YELLOW LATOSOL (Ortho), medium textured</b>																									
25	32,691	A <sub>1</sub>	0-20	0	0	100	79.1	13.2	1.0	6.7	1.8	73							4.11	3.80	1.21	0.34	0.03	1.84	1.52
	32,692	A <sub>2</sub>	20-70	0	0	100	68.4	16.4	0.8	14.4	7.9	45							6.95	6.29	1.72	0.57	0.03	1.88	1.60
	32,693	B <sub>1</sub>	70-140	0	0	100	68.5	14.3	0.4	16.8	10.1	40							8.62	7.77	1.72	0.67	0.03	1.89	1.65
	32,694	B <sub>21</sub>	140-220	0	0	100	62.7	16.5	1.0	19.8	0	100							9.31	8.55	1.92	0.64	0.03	1.85	1.62
	32,695*	B <sub>22</sub>	220-320	0	0	100	62.2	16.4	0.4	21.0	0	100							9.44	8.69	1.82	0.64	0.03	1.85	1.63
* 100% hyaline and lacteous quartz grains, some of the hyaline ones rolled; some of the grains are corroded, many have a ferruginous vernis. Traces of dark iron concretions, turmaline and staurolite																									
<b>KAOLINITIC YELLOW LATOSOL, Compact phase, very heavy textured</b>																									
26	32,879	A <sub>1</sub>	0-3	0	0.1	99.9	9.3	15.8	14.6	60.3	33.8	44							25.56	22.62	3.49	1.36	0.08	1.92	1.75
	32,880	A <sub>2</sub>	3-40	0	0.6	99.4	4.9	11.7	8.2	75.2	17.3	77							31.41	28.91	3.79	1.97	0.07	1.85	1.70
	32,881	B <sub>2</sub>	40-90	0	0.1	99.9	2.8	5.7	7.0	84.5	0	100							34.23	32.82	4.10	1.85	0.06	1.77	1.64
	32,882	B <sub>3</sub>	90-130	0	0.1	99.9	2.5	7.4	10.5	79.6	0	100							35.46	33.18	4.00	1.60	0.06	1.82	1.69
	32,883*	C	130-180	0	0.3	99.7	2.3	6.3	8.4	83.0	0	100							35.37	33.47	3.89	1.58	0.07	1.80	1.67
* 83% hyaline quartz grains, many of them rolled, some corroded; 5% vegetal detritus parts; 10% lacteous clay concretions and khaki-coloured clay concretions; 2% dark and sanguineous iron concretions; traces of magnetite and rolled turmaline																									
<b>KAOLINITIC YELLOW LATOSOL, Compact phase, rather heavy textured</b>																									
27	32,673	A <sub>1</sub>	0-30	0	0	100	55.0	27.1	3.0	14.9	5.9	61							7.40	6.02	1.11	0.60	0.03	2.09	1.87
	32,674	A <sub>2</sub>	30-60	0	0	100	38.7	24.9	2.4	34.0	17.8	48							14.26	12.45	1.92	0.94	0.03	1.95	1.77
	32,675	B <sub>2</sub>	60-120	0	0	100	36.5	25.6	2.6	35.3	12.4	65							15.04	13.02	2.03	1.06	0.03	1.96	1.79
	32,676	B <sub>3</sub>	120-170	0	0	100	42.5	24.5	2.4	30.6	0	100							13.51	12.02	1.72	0.94	0.03	1.91	1.75
<b>KAOLINITIC YELLOW LATOSOL, intergrade to RED YELLOW PODZOLIC soil, rather heavy textured</b>																									
29	32,866	A <sub>11</sub>	0-5	0	0	100	30.1	29.2	7.6	33.1	15.5	53							14.84	12.34	1.12	0.61	0.03	2.04	1.93
	32,867	A <sub>12</sub>	5-15	0	0	100	25.9	26.9	7.5	39.7	22.6	43							17.91	15.20	1.32	0.82	0.03	2.00	1.90
	32,868	A <sub>2</sub>	15-50	0	0	100	11.5	26.7	7.1	54.7	0.8	99							24.71	21.63	1.32	1.06	0.03	1.94	1.87
	32,869	A+B	50-70	0	0	100	10.8	22.7	6.1	60.4	0	100							26.27	23.89	1.32	1.06	0.03	1.87	1.81
	32,870*	B <sub>2</sub>	70-140	0	0	100	9.6	20.9	6.3	63.2	0	100							27.79	25.82	1.42	1.19	0.03	1.83	1.77
	32,871	B <sub>3</sub>	140-190	0	0	100	9.0	20.2	9.3	61.5	0	100							28.76	26.67	1.32	1.27	0.03	1.83	1.78
	32,872*	C	190-250	0	0	100	6.7	20.2	10.9	62.2	0	100							29.09	28.16	0.91	1.27	0.02	1.76	1.72
* 32,870: 98% hyaline quartz grains; 2% vegetal detritus parts; traces of turmaline and magnetite. 32,872: 100% hyaline quartz grains; traces of lacteous clay concretions, vegetal detritus parts and turmaline.																									

\* mineralogical composition of the coarse sand fraction / *composição mineralógica da fração areia grossa.*



Horizon horizonte	Moisture equivalent equivalente de umidade g/100 g M.E.	Cation exchange complex/complexo de troca catiônica (m.e./100 g)																	
		C org. %	N total %	C/N	pH		P <sub>2</sub> O <sub>5</sub> available assimilável mg/100 g		exchangeable metallic cations bases trocáveis				sum of cations soma das bases S	active acidity acidez ativa (A) <sup>+</sup>	pH-depend. acidity acidez pH-depend. H <sup>+</sup>	Potential cation exchange capacity capac. total de troca T	Base saturation saturação de bases %	Soluble salts sais solúveis m.e./100 g s.s.	Textural ratio relação textural B/A
					H <sub>2</sub> O	KCl	Truog	Bray	Ca <sup>++</sup>	Mg <sup>++</sup>	K <sup>+</sup>	Na <sup>+</sup>							
	C	N																	
(KYL, <i>v<sub>h</sub></i> )																			
A <sub>1</sub>	34.7	3.61	0.33	10.9	4.0	3.5	0.5	1.2	0.87	0.98	0.26	0.07	2.18	2.16	10.52	14.86	14.7		
A <sub>3</sub>	33.4	1.29	0.13	9.9	4.2	3.8	0.4	0.4	0.56	0.14	0.04	0.74	1.57	4.62	6.93	10.7			
B <sub>2</sub>	34.0	0.69	0.08	8.6	4.7	4.1	0.2	0.2	0.49	0.12	0.03	0.64	1.07	2.85	4.56	14.0	1.12		
B <sub>3</sub>	34.2	0.44	0.05	8.8	5.2	4.7	0.1	0.1	0.47	0.09	0.03	0.59	0.16	1.90	2.65	22.3			
C	33.6	0.27	0.03	9.0	5.5	4.9	0.1	0.1	0.45	0.09	0.03	0.57	0.16	1.28	2.01	28.4			
(KYL, <i>m</i> )																			
A <sub>1</sub>	4.8	0.88	0.06	14.7	4.6	3.9	0.4	1.1	0.48	0.06	0.03	0.57	0.72	2.91	4.20	13.6			
A <sub>3</sub>	8.3	0.42	0.03	14.0	4.6	3.9	0.4	0.6	0.32	0.08	0.04	0.44	0.93	2.30	3.67	12.0			
B <sub>1</sub>	9.4	0.25	0.03	8.3	4.5	3.8	0.2	0.2	0.28	0.06	0.03	0.37	0.73	1.49	2.59	14.3	1.82		
B <sub>21</sub>	9.4	0.18	0.02	9.0	4.5	3.8	0.2	0.2	0.28	0.07	0.03	0.38	0.64	0.97	1.99	19.1			
B <sub>22</sub>	10.1	0.13	0.02	6.5	4.5	3.8	0.1	0.1	0.28	0.06	0.03	0.37	0.64	0.37	1.38	26.8			
(KYL, <i>C<sub>vh</sub></i> )																			
A <sub>1</sub>	31.6	2.59	0.30	8.6	4.4	3.8	0.6	2.5	1.11	0.80	0.12	0.08	2.11	0.95	6.93	9.99	21.1		
A <sub>3</sub>	29.4	0.96	0.12	8.0	4.6	4.0	0.4	0.5	0.76	0.10	0.06	0.92	1.11	3.19	5.22	17.6			
B <sub>2</sub>	31.7	0.63	0.08	7.9	4.8	4.0	0.2	0.2	0.51	0.13	0.11	0.75	1.03	2.47	4.25	17.6	1.28		
B <sub>3</sub>	32.6	0.48	0.06	8.0	5.1	4.0	0.1	0.1	0.51	0.11	0.04	0.66	0.78	2.27	3.71	17.8			
C	32.0	0.38	0.05	7.6	5.1	4.2	0.1	0.1	0.47	0.11	0.04	0.62	0.70	2.19	3.51	17.7			
(KYL, <i>C<sub>rh</sub></i> )																			
A <sub>1</sub>	9.3	0.65	0.06	10.8	4.3	3.7	0.4	1.2	0.54	0.11	0.08	0.73	0.72	2.71	4.16	17.5			
A <sub>3</sub>	16.8	0.46	0.05	9.2	4.8	4.0	0.3	0.3	0.69	0.08	0.10	0.87	0.61	1.82	3.30	26.4			
B <sub>2</sub>	17.2	0.25	0.03	8.3	5.0	4.2	0.2	0.2	0.95	0.09	0.08	1.12	0.24	1.58	2.94	38.1	1.44		
B <sub>3</sub>	14.6	0.22	0.03	7.3	5.0	4.3	0.2	0.2	0.58	0.11	0.12	0.73	0.12	1.30	2.15	34.0			
(KYL-RP <sub>rh</sub> )																			
A <sub>11</sub>	22.2	2.45	0.22	11.1	3.9	3.4	0.8	1.4	0.33	0.90	0.10	0.05	1.38	2.16	7.47	11.01	12.5		
A <sub>12</sub>	20.6	1.27	0.10	12.7	4.3	3.8	0.5	0.9	0.61	0.08	0.03	0.72	1.42	3.88	6.02	12.0			
A <sub>3</sub>	25.1	0.54	0.07	7.7	4.2	3.7	0.4	0.5	0.47	0.05	0.02	0.54	1.34	2.19	4.07	13.3			
AB	26.1	0.45	0.06	7.5	3.8	3.6	0.4	0.4	0.36	0.04	0.02	0.42	1.50	1.65	3.57	11.8	1.49		
B <sub>1</sub>	25.7	0.29	0.06	4.8	3.9	3.7	0.2	0.2	0.39	0.06	0.02	0.47	1.54	1.14	3.15	14.9			
B <sub>3</sub>	25.1	0.21	0.05	4.2	4.0	3.7	0.2	0.2	0.45	0.06	0.03	0.54	1.22	0.96	2.72	19.9			
C	24.4	0.09	0.03	3.0	5.0	4.0	0.2	0.2	0.45	0.06	0.02	0.53	0.65	0.76	1.94	27.3			



Hori- zon hori- zonte	Moisture equivalent equivalente de unidade g/100 g M.E.	C org. %C	N total %N	C/N	pH		P <sub>2</sub> O <sub>5</sub> available assimilável mg/100 g Truog Bray	exchangeable metallic cations bases trocáveis				sum of cations soma das bases S	active acidity acidez ativa (Al) <sup>+</sup>	pH-depend. acidity acidez pH-depend. H <sup>+</sup>	Potential cation exchange capacity capac. total de troca T	Base saturation saturação de bases %V	Soluble salts sais solúveis m.e./100 g s.s.	Textural ratio relação textural B/A
					H <sub>2</sub> O	KCl		Ca <sup>++</sup>	Mg <sup>++</sup>	K <sup>+</sup>	Na <sup>+</sup>							
								Ca <sup>++</sup>	Mg <sup>++</sup>	K <sup>+</sup>	Na <sup>+</sup>							
								Ca <sup>++</sup>	Mg <sup>++</sup>	K <sup>+</sup>	Na <sup>+</sup>							
(KRL <sub>m</sub> )																		
A <sub>1</sub>	6.0	0.69	0.05	13.8	4.4	3.6	1.3	2.3	0.64	0.36	0.03	0.02	1.05	0.44	1.17	2.66	39.5	
A <sub>2</sub>	11.1	0.18	0.02	9.0	4.4	3.8	0.8	0.3	0.46	0.26	0.03	0.02	0.77	0.44	0.36	1.57	49.0	
B <sub>2</sub>	10.3	0.20	0.02	10.0	4.1	3.8	0.8	0.2	0.46	0.26	0.02	0.01	0.75	0.32	0.08	1.15	65.2	1.25
B <sub>3</sub>	8.9	0.04	0.01	4.0	4.5	3.8	0.8	0.2	0.46	0.26	0.03	0.01	0.76	0.24	0.06	1.06	71.7	
(KLS, F)																		
A <sub>1</sub>	6.8	0.97	0.10	9.7	4.5	3.6	1.3	0.48	0.06	0.03	0.03	0.57	0.93	3.83	5.33	10.7		
A <sub>2</sub>	6.8	0.41	0.04	10.3	5.1	4.2	0.7	0.30	0.06	0.04	0.04	0.40	0.52	2.44	3.36	11.9		
B <sub>11</sub>	6.4	0.21	0.02	10.5	4.9	4.2	0.3	0.30	0.04	0.07	0.07	0.41	0.44	1.62	2.47	16.6		1.31
B <sub>12</sub>	6.7	0.18	0.02	9.0	5.0	4.2	0.3	0.30	0.06	0.05	0.05	0.41	0.36	0.97	1.74	23.6		
B <sub>3</sub>	6.0	0.09	0.02	4.5	5.0	4.1	0.3	0.30	0.06	0.05	0.05	0.41	0.32	0.88	1.61	25.5		
B <sub>3(g)</sub>	7.2	0.08	0.02	4.0	4.8	4.1	0.3	0.36	0.08	0.08	0.08	0.52	0.32	0.85	1.69	30.8		
(KLS, s)																		
A <sub>1</sub>	4.8	0.38	0.03	12.7	5.1	4.0	0.5	0.28	0.03	0.02	0.02	0.33	0.44	1.65	2.42	13.6		
A <sub>2</sub>	5.7	0.24	0.02	12.0	4.9	4.0	0.4	0.26	0.03	0.02	0.02	0.31	0.40	1.29	2.00	15.5		
B <sub>1</sub>	7.6	0.13	0.02	6.5	5.0	4.0	0.3	0.26	0.04	0.03	0.03	0.33	0.32	1.04	1.69	19.5		2.04
B <sub>21</sub>	8.5	0.09	0.01	9.0	5.3	4.2	0.2	0.26	0.05	0.04	0.04	0.35	0.24	0.86	1.45	24.1		
B <sub>22</sub>	8.3	0.12	0.01	12.0	5.2	4.1	0.3	0.26	0.04	0.05	0.05	0.35	0.24	0.83	1.42	24.6		
(RL)																		
A <sub>1</sub>	35.2	0.78	0.08	9.8	5.3	4.4	0.4	1.01	0.13	0.32	0.32	1.46	0.41	4.20	6.07	24.1		
A <sub>2</sub>																		
B <sub>2</sub>	36.5	0.21	0.04	5.3	5.3	4.7	0.3	0.70	0.02	0.03	0.03	0.75	0.25	2.88	3.88	19.3		
(DL, s)																		
A <sub>1</sub>	21.5	1.44	0.15	9.6	4.9	3.9	0.6	0.62	0.19	0.04	0.04	0.85	1.28	6.78	8.91	9.5		
A <sub>2</sub>	22.2	1.02	0.11	9.3	5.1	4.0	0.5	0.41	0.15	0.04	0.04	0.60	0.99	5.67	7.26	8.3		
B <sub>2</sub>	23.0	0.64	0.07	9.1	5.1	4.0	0.5	0.41	0.16	0.04	0.04	0.61	0.66	4.63	5.90	10.3		1.08
C	24.0	0.56	0.07	8.0	5.5	4.4	0.4	0.62	0.15	0.03	0.03	0.80	0.29	3.88	4.97	16.1		
(RP <sub>2b</sub> )																		
A <sub>1</sub>		1.34	0.14	9.6	5.3	3.9	<0.5	0.66	0.56	0.31	<0.01	1.54	8.04	9.58	16			
A <sub>2</sub>		0.64	0.09	7.1	4.8	3.6		0.41	0.26	0.25	<0.01	0.93	7.54	8.47	11			
B <sub>1</sub>		0.35	0.08	4.4	4.9	3.6		0.10	0.20	0.22	<0.01	0.53	10.67	11.20	5			2.04
B <sub>2</sub>		0.34	0.09	3.8	4.8	3.6		<0.01	0.38	0.24	0.01	0.64	13.35	13.99	5			
B <sub>3g</sub>		0.20	0.08	2.5	5.0	3.8		<0.01	0.38	0.21	0.02	0.62	19.09	19.71	3			

		Granulometric composition of fine earth <i>composição granulométrica da terra fina</i>															Fine earth attacked by: <i>ataque da terra fina por:</i> H <sub>2</sub> SO <sub>4</sub> , d = 1.47					SiO <sub>2</sub> :Al <sub>2</sub> O <sub>3</sub>		SiO <sub>2</sub> :(Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> )	
No. prof. descr. de perfil	No. lab. IQA	Hori-zon hori-zonte	Depth profundidade cm	Coarse gravel calhaus	Fine gravel cascalho	Fine earth terra fina	coarse sand areia grossa	fine sand areia fina	silt silte	silt silte	clay argila	'Natural' clay argila 'natural'	Index of structure grau de flocação	Apparent bulk density massa espec. aparente	Real bulk density massa espec. real	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>	P <sub>2</sub> O <sub>5</sub>	SiO <sub>2</sub> :Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub> :(Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> )			
				% > 20 mm co.g.	% 2.0-20 mm f.g.	% 2.0 < f.e.	% 2.0-0.2 mm co.s.	% 0.2-0.05 mm f.s.	% 0.05-0.02 mm si.	% 0.02-0.002 mm si.	% < 0.002 mm c.	% n.c.	mm	g/cm <sup>3</sup> a.b.d.	g/cm <sup>3</sup> r.b.d.	%	%	%	%	%	Ki	Kr			
RED YELLOW PODZOLIC soil, with rather high base saturation																									
37	33,157	A <sub>1</sub>	0-8	0	4	96	17.9	29.0	28.5	24.6	12.3	50				12.00	9.34	7.96	1.35	0.08	2.18	1.42			
	33,158	A <sub>2</sub>	8-40	0	6	94	12.3	26.1	28.6	33.0	23.2	30				16.74	13.64	9.13	1.43	0.06	2.09	1.46			
	33,159	B <sub>2</sub>	40-80	0	34	66	8.7	16.4	26.9	48.0	2.0	96				23.87	20.01	12.24	1.35	0.07	2.03	1.46			
	33,160	B <sub>3</sub>	80-110	0	2	98	6.2	13.7	35.0	45.1	0	100				27.36	22.32	13.70	1.36	0.07	2.08	1.50			
	33,161	C	110-140	0	2	98	9.1	26.1	39.6	25.2	0	100				19.94	15.95	9.83	1.14	0.05	2.12	1.53			
RED YELLOW PODZOLIC soil, intergrade to KAOLINITIC YELLOW LATOSOL, very heavy textured																									
38	32,702	A <sub>1</sub>	0-2	0	1.5	98.5	8.9	18.4	9.7	63.0	23.6	63				26.70	23.09	5.98	1.24	0.06	1.97	1.69			
	32,703	A <sub>2</sub>	2-40	0	1.1	98.9	4.6	11.5	5.7	78.2	14.4	82				31.23	28.67	6.76	1.33	0.04	1.85	1.61			
	32,704	B <sub>2</sub>	40-100	0	0.9	99.1	2.4	8.6	5.5	83.5	0	100				34.91	32.32	7.98	1.17	0.04	1.84	1.59			
	32,705	B <sub>3</sub>	100-180	0	0.9	99.1	2.5	15.8	9.0	72.7	0	100				34.40	32.24	7.67	1.23	0.04	1.81	1.58			
	72,706*	C	180-230	0	0.8	99.2	2.6	15.4	12.9	69.1	0	100				35.48	32.80	7.45	1.38	0.03	1.84	1.61			
* 77% hyaline quartz grains, some of them rolled, others corroded; 15% cream-coloured clay concretions; 6% sanguineous iron concretions; 1% ilmenite and turmaline; 1% vegetal detritus parts; traces of staurolite																									
RED YELLOW PODZOLIC soil, intergrade to KAOLINITIC YELLOW LATOSOL, rather heavy textured																									
39	32,707	A <sub>1</sub>	0-10	0	1.8	98.2	26.8	51.9	6.7	14.6	2.5	83				7.76	5.43	1.52	0.91	0.03	2.43	2.06			
	32,708	A <sub>2</sub>	10-60	0	4.1	95.9	19.8	48.2	4.9	27.1	12.5	54				12.11	9.79	2.22	0.99	0.03	2.10	1.84			
	32,709	AB	60-110	0	19.1	80.9	16.7	42.9	2.2	38.2	3.8	90				15.58	13.57	3.02	1.01	0.03	1.95	1.71			
	32,710	B <sub>21</sub>	110-160	0	1.0	99.0	16.3	37.4	3.4	42.9	0	100				18.09	15.44	3.33	0.95	0.03	1.99	1.75			
	22,711	B <sub>22</sub>	160-220	0	9.2	90.8	15.5	34.9	6.3	43.3	0	100				20.29	17.59	3.63	1.01	0.03	1.96	1.73			
RED YELLOW PODZOLIC soil, intergrade to KAOLINITIC YELLOW LATOSOL, Concretionary phase																									
40	32,712	A <sub>1</sub>	0-10	0	21.7	78.3	31.6	36.7	9.8	21.9	4.5	79				10.43	7.82	5.51	0.88	0.05	2.27	1.58			
	32,713	A <sub>2</sub>	10-80	0	31.8	68.2	17.5	23.7	4.5	54.3	23.6	52				21.66	19.25	9.16	1.35	0.04	1.91	1.47			
	32,714	B <sub>2</sub>	80-160	0	3.1	96.9	10.3	24.7	9.4	55.6	0	100				26.82	22.66	12.91	1.35	0.05	2.01	1.48			
	32,715*	B <sub>2</sub>	160-250	0	1.1	98.9	16.5	31.4	6.5	45.6	0	100				20.87	16.89	5.15	1.10	0.03	2.03	1.70			
* 80% hyaline quartz grains, many of them rolled; 20% of fragments of iron oxides; traces of vegetal detritus parts and turmaline (some of them rolled)																									
RED YELLOW MEDITERRANEAN-like soil																									
41	32,345*	A <sub>1</sub>	0-15	0	1.0	99.0	1.3	70.8	10.2	17.7	5.3	70				1.29	2.58	5.90	4.30	2.14	0.31	0.04	2.33	1.77	
	32,346*	A <sub>2</sub> (A <sub>3</sub> )	15-50	0.2	6.4	93.4	1.3	73.3	8.5	13.9	6.7	52				1.47	2.60	5.75	3.35	1.92	0.30	0.04	2.92	2.14	
	32,347*	B <sub>2</sub>	50-100	0	0.2	99.8	0.7	61.2	7.5	30.6	25.6	16				1.40	2.68	12.56	9.04	3.25	0.46	0.04	2.36	1.92	
	32,348*	B <sub>2</sub>	100-160	0	1.4	98.6	0.5	62.3	11.0	26.2	17.1	35				1.44	2.66	12.52	8.91	3.04	0.50	0.04	2.39	1.96	
	32,349*	C <sub>1g</sub>	160-230	0	0	100	0	18.8	19.9	61.3	26.9	56				1.31	2.73	27.72	16.14	6.65	0.63	0.06	2.92	2.31	
	32,350*	IIC <sub>2g</sub>	230-270	0	0	100	0	67.3	18.8	13.9	4.1	71				1.46	2.68	11.41	6.38	2.64	0.36	0.10	3.04	2.41	
* 32,345: 70% hyaline quartz grains, some of them rolled; 30% vegetal detritus parts; traces of magnetite. 32,346: 90% hyaline quartz grains, many of them rolled; 10% vegetal detritus parts; traces of iron concretions, magnetite, muscovites and very strongly attacked biotite. 32,347: 98% hyaline quartz grains, many of them rolled; 2% muscovite and biotite; and vegetal detritus parts.																									

Cation exchange complex/complexo de troca catiônica (m.e./100 g)

Horizon horizonte	Moisture equivalent equivalente de umidade g/100 g M.E.	C org. %C	N total %N	C/N	pH		P <sub>2</sub> O <sub>5</sub> available assimilável mg/100 g Truog Bray	exchangeable metallic cations bases trocáveis				sum of cations soma das bases S	active acidity acidez ativa (Al) <sup>+</sup>	pH-depend. acidity acidez pH-depend. H <sup>+</sup>	Potential cation exchange capacity capac. total de troca T	Base saturation saturação de bases %V	Soluble salts sais solúveis m.e./100 g s.s.	Textural ratio relação textural B/A	
					H <sub>2</sub> O	KCl		Ca <sup>++</sup>	Mg <sup>++</sup>	K <sup>+</sup>	Na <sup>+</sup>								
<b>(RP<sub>rhd</sub>)</b>																			
A <sub>1</sub>	27.3	2.04	0.23	8.9	5.7	5.2	1.4	4.24	1.72	0.24	0.05	6.25	0.08	3.74	10.07	62.1			
A <sub>2</sub>	25.2	0.55	0.07	7.9	5.3	4.2	0.4	1.65	1.16	0.13	0.03	2.97	0.08	2.74	5.79	51.3			
B <sub>2</sub>	31.2	0.36	0.05	7.2	5.4	4.8	0.3	1.70	2.00	0.21	0.04	3.95	0.08	2.08	6.11	64.6		1.65	
B <sub>3</sub>	24.2	0.31	0.04	7.8	5.4	4.3	0.3	0.92	2.32	0.22	0.04	3.50	0.20	2.17	5.87	59.6			
C	28.1	0.11	0.03	3.7	5.4	4.3	0.3	0.69	1.65	0.35	0.04	2.73	0.20	1.27	4.20	65.0			
<b>(RP-KYL<sub>vh</sub>)</b>																			
A <sub>1</sub>	30.2	2.99	0.26	11.5	4.2	3.6	0.7	1.9	0.41	0.72	0.21	1.44	1.74	8.08	11.26	12.8			
A <sub>2</sub>	30.9	0.86	0.09	9.6	4.3	3.8	0.3	0.2	0.33	0.10	0.03	0.46	1.15	2.84	4.45	10.3			
B <sub>2</sub>	36.3	0.50	0.05	10.0	4.5	4.1	0.1	0.47	0.10	0.03	0.03	0.60	0.66	2.05	3.31	18.1		1.18	
B <sub>3</sub>	33.0	0.34	0.04	8.5	5.1	4.3	0.1	0.31	0.08	0.04	0.04	0.43	0.45	1.92	2.80	15.4			
C	30.9	0.18	0.02	9.0	5.4	4.6	0.1	0.39	0.09	0.04	0.04	0.52	0.24	1.48	2.24	23.2			
<b>(RP-KYL<sub>rh</sub>)</b>																			
A <sub>1</sub>	12.8	1.39	0.11	12.6	4.3	3.5	0.5	1.7	0.42	0.08	0.03	0.53	0.93	4.05	5.51	9.6			
A <sub>2</sub>	17.1	0.44	0.05	8.8	4.3	3.8	0.4	0.2	0.32	0.14	0.03	0.49	0.65	1.56	2.70	18.1			
AB	19.5	0.25	0.03	8.3	4.6	4.1	0.1	0.61	0.14	0.06	0.06	0.81	0.24	1.16	2.21	36.7		2.05	
B <sub>21</sub>	21.2	0.20	0.02	10.0	4.5	4.1	0.1	0.57	0.08	0.03	0.03	0.68	0.36	1.11	2.15	31.6			
B <sub>22</sub>	21.0	0.17	0.02	8.5	4.9	4.0	0.1	0.42	0.08	0.07	0.07	0.57	0.36	0.84	1.77	32.2			
<b>(RP-KYL<sub>c</sub>)</b>																			
A <sub>1</sub>	17.3	2.75	0.25	11.0	4.7	3.9	1.0	3.4	1.98	0.84	0.25	0.08	3.15	0.53	5.61	9.29	33.9		
A <sub>2</sub>	23.8	0.49	0.06	8.2	4.6	3.9	0.4	0.2	0.47	0.11	0.05	0.63	1.43	1.83	3.89	16.2			
B <sub>1</sub>	24.4	0.17	0.02	8.5	4.5	3.9	0.2	0.47	0.11	0.08	0.08	0.66	1.59	1.06	3.31	19.9		1.46	
B <sub>2</sub>	19.8	0.10	0.01	10.0	4.8	3.9	0.2	0.32	0.06	0.02	0.02	0.40	1.30	0.52	2.22	18.0			
<b>(RM)</b>																			
A <sub>1</sub>	18.4	2.37	0.19	12.5	6.0	5.3	1.6	2.0	6.39	1.34	0.26	0.08	8.07	0.24	2.40	10.71	75.4		
A <sub>2</sub> (A <sub>2</sub> )	13.9	0.59	0.07	8.4	5.3	4.4	1.1	1.3	2.32	0.97	0.16	0.04	3.49	0.16	1.66	5.31	65.7		
B <sub>2</sub>	20.6	0.25	0.04	6.3	4.8	3.6	0.8	0.2	1.83	1.59	0.10	0.04	3.56	2.04	0.81	6.41	55.5		1.90
B <sub>3</sub>	20.0	0.16	0.03	5.3	4.7	3.5	0.8	0.2	1.38	1.83	0.07	0.04	3.32	2.56	0.29	6.17	53.8		
C <sub>1g</sub>	36.3	0.13	0.02	6.5	4.7	3.2	0.9	0.2	5.31	10.30	0.36	0.22	16.19	9.56	0.59	26.34	61.5		
IIC <sub>2g</sub>	18.3	0.08	0.01	8.0	4.8	3.5	0.9	1.1	3.00	4.80	0.08	0.13	8.03	1.31	0.12	9.46	84.9		

32,348: 97% hyaline quartz grains, many of them rolled; 3% vegetal detritus parts, muscovite and sanguineous iron concretions. 32,349: 95% hyaline quartz grains, only a few of them rolled; 5% vegetal detritus parts; traces of muscovite, biotite and dark iron concretions. 32,350: 50% khaki-coloured sand concretions; 48% quartz grains; 2% vegetal detritus parts and muscovite.

No. prof. descr. de perfil	No. lab. IQA	Hori- zon hori- zonte	Depth profun- didade cm	Granulometric composition of fine earth <i>composição granulométrica da terra fina</i>										Index of structure grau de flocação	Apparent bulk density <i>massa espec. aparente</i> g/cm <sup>3</sup> a.b.d.	Real bulk density <i>massa espec. real</i> g/cm <sup>3</sup> r.b.d.	Fine earth attacked by: <i>ataque da terra fina por:</i> H <sub>2</sub> SO <sub>4</sub> , d = 1.47					SiO <sub>2</sub> :Al <sub>2</sub> O <sub>3</sub> Ki	SiO <sub>2</sub> : (Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> ) Kr
				Coarse gravel <i>calhaus</i> % > 20 mm co.g.	Fine gravel <i>cascalho</i> % 2.0-20 mm f.g.	Fine earth <i>terra fina</i> % < 2.0 mm f.e.	coarse sand <i>areia grossa</i> % 0.2-2.0 mm co.s.	fine sand <i>areia fina</i> % 0.05-0.2 mm f.s.	silt <i>silte</i> % 0.05-0.02 mm si.	silt <i>silte</i> % 0.02-0.002 mm si.	clay <i>argila</i> % < 0.002 mm c.	'Natural' clay <i>'natural' argila</i> % n.c.	SiO <sub>2</sub> %				Al <sub>2</sub> O <sub>3</sub> %	Fe <sub>2</sub> O <sub>3</sub> %	TiO <sub>2</sub> %	P <sub>2</sub> O <sub>5</sub> %			
<b>KAOLINITIC LITHOSOL</b>																							
42	32,722	A <sub>1</sub>	0-15	0	14.0	86.0	31.4	27.1	8.3	33.2	12.6	62			15.03	12.60	1.01	0.58	0.04	2.03	1.93		
	32,723	A <sub>2</sub>	15-60	1.3	9.8	88.9	28.5	24.9	6.3	40.3	20.5	49			18.56	16.28	1.22	0.85	0.04	1.94	1.85		
	32,724	R <sub>1</sub> -B <sub>1</sub>	60-110	0	7.6	92.4	21.8	24.4	11.1	42.7	1.6	96			25.12	24.13	1.42	0.90	0.04	1.77	1.71		
	32,725	R <sub>2</sub>	110-200	0	0	100	22.0	20.7	22.6	34.7	0	100			32.69	30.77	0.91	0.80	0.05	1.81	1.77		
	32,726	R <sub>3</sub>	200-270	0	0	100	10.4	14.4	23.5	51.7	0	100			27.26	28.85	0.80	0.92	0.06	1.61	1.58		
A sample of the rock in the R <sub>1</sub> -R <sub>3</sub> , analysed by Kaiser Aluminum Co, Belém, proved to consist totally of kaolinite																							
<b>GROUND WATER LATERITE soil</b>																							
43	31,886	A <sub>1</sub>	0-30	0	0	100	32.3	41.1	10.1	16.5	5.0	70	1.34	2.47	7.68	6.87	0.83	0.41		1.90	1.76		
	31,887	A <sub>2</sub>	30-90	0	0	100	37.0	33.4	7.7	21.9	11.8	46	1.57	2.62	9.87	8.13	1.22	0.48		2.06	1.88		
		B <sub>1g</sub>	90-120																				
	31,888	B <sub>2g</sub>	120-260	0	5.3	94.7	36.9	26.2	7.1	29.8	0	100	1.50	2.64	14.67	11.75	2.84	0.51		2.12	1.84		
	31,889	IIB <sub>3g</sub>	260-300	0	8.8	91.2	39.1	34.7	4.0	22.8	0	100	1.52	2.62	10.76	8.85	1.61	0.47		2.07	1.85		
<b>HYDROMORPHIC GREY PODZOLIC soil, with high base saturation, 'Ortho'</b>																							
44	33,168	A <sub>1</sub>	0-10	0	0	100	14.1	35.3	41.3	9.3	2.8	70			3.93	2.27	0.81	0.26	0.02	2.94	2.39		
	33,169	A <sub>2</sub>	10-50	0	1	99	15.3	37.0	38.4	9.3	3.6	61			4.49	2.48	0.81	0.26	0.02	3.08	2.54		
	33,170	B <sub>2g</sub>	50-80	0	1	99	13.1	22.5	34.7	29.7	17.5	41			12.07	6.95	3.11	0.37	0.02	2.95	2.30		
	33,171	B <sub>3g</sub>	80-120	0	1	99	10.1	21.3	37.9	30.7	22.2	28			13.26	7.56	2.89	0.41	0.02	2.98	2.40		
	33,172	C <sub>g</sub>	120-150	0	0	100	5.5	10.8							17.51	7.60	3.33	0.42	0.03	3.92	3.06		
<b>HYDROMORPHIC GREY PODZOLIC soil, with high base saturation, Dark phase</b>																							
45	33,178	A <sub>1</sub>	0-7	0	0	100	11.7	29.4	42.7	16.2	4.7	71			6.11	3.27	1.33	0.36	0.04	3.17	2.52		
	33,179	A <sub>2</sub>	7-30	0	0	100	7.8	27.7	42.7	21.8	11.3	48			8.64	5.14	1.85	0.44	0.03	2.86	2.32		
	33,180	B <sub>2g</sub>	30-75	0	0	100	3.7	10.8	24.8	60.7	30.9	49			25.48	16.08	4.52	0.69	0.03	2.69	2.28		
	33,181	B <sub>3g</sub>	75-120	0	0	100	5.1	16.0	30.1	48.8	13.6	72			20.67	12.66	3.29	0.61	0.03	2.78	2.38		
	33,182	C <sub>g</sub>	120-140	0	2	98	30.0	14.7	?	?	?	?			11.48	6.92	1.68	0.42	0.02	2.82	2.44		
<b>HYDROMORPHIC GREY PODZOLIC soil, with high base saturation, Shallow phase</b>																							
46	33,192	A <sub>1</sub>	0-8	0	0	100	18.8	37.9	31.1	12.2	3.9	68			4.41	2.34	1.63	0.23	0.05	3.21	2.22		
	33,193	A <sub>21</sub>	8-25	0	0	100	19.2	38.1	29.9	12.8	5.5	57			4.65	2.59	2.73	0.24	0.05	3.05	1.82		
	33,194	A <sub>22</sub>	25-37	0	22	78	16.9	34.3	31.8	17.0	9.6	44			6.89	3.97	3.36	0.30	0.05	2.95	1.92		
	33,195	B <sub>21g</sub>	37-57	0	2	98	8.6	14.1	29.2	48.1	33.0	31			20.75	10.70	5.10	0.48	0.05	3.30	2.53		
	33,196	B <sub>22g</sub>	57-77	0	1	99	6.0	13.5	31.2	49.3	35.4	28			22.03	10.96	6.63	0.45	0.09	3.42	2.47		
	33,197	C <sub>1g</sub>	77-87	0	0	100	2.1	14.1	62.3	21.5	16.9	21			11.38		5.46	0.24	0.12				
	33,198	C <sub>2g</sub>	87-102	3	13	84	5.3	6.4	44.9	43.4	31.8	27			24.21	10.10	4.73	0.40	0.24	4.08	3.14		

Cation exchange complex/complexo de troca catiônica (m.e./100g)

Horizon horizonte	Moisture equivalent equivalente de umidade g/100 g M.E.	C org. %	N total %	C/N	pH		P <sub>2</sub> O <sub>5</sub> available assimilável mg/100 g Truog Bray	exchangeable metallic cations bases trocáveis				sum of cations soma das bases S	active acidity acidez ativa (Al) <sup>+</sup>	pH-depend. acidity acidez pH-depend. H <sup>+</sup>	Potential cation exchange capacity capac. total de troca T	Base saturation saturação de bases %	Soluble salts sais solúveis m.e./100 g s.s.	Textural ratio relação textural B/A
					H <sub>2</sub> O	KCl		Ca <sup>++</sup>	Mg <sup>++</sup>	K <sup>+</sup>	Na <sup>+</sup>							
<b>(L)</b>																		
A <sub>1</sub>	18.9	1.19	0.11	10.8	4.4	3.8	0.8	3.3	0.57	0.12	0.06	0.75	1.17	4.34	6.26	12.0		
A <sub>3</sub>	20.4	0.76	0.07	10.9	4.5	4.0	0.4	0.6	0.36	0.10	0.07	0.53	1.18	3.42	5.13	10.3		
R <sub>1</sub> -B <sub>1</sub>	23.6	0.34	0.03	11.3	4.6	4.1		0.2	0.36	0.11	0.10	0.57	0.73	1.54	2.84	20.1		
R <sub>2</sub>	28.2	0.21	0.02	10.5	4.4	4.0		0.2	0.44	0.12	0.04	0.60	0.44	0.99	2.03	29.6		
R <sub>3</sub>	27.3	0.10	0.02	5.0	4.6	3.8		0.1	0.22	0.01	0.02	0.25	0.40	0.49	1.14	21.9		
<b>(GL)</b>																		
A <sub>1</sub>	25.0	3.33	0.20	16.7	4.6	4.0	1.0		0.33	0.10	0.09	0.52	3.04	12.91	16.47	3.2		
A <sub>3</sub>	16.5	0.22	0.03	7.3	4.9	4.0	1.0		0.28	0.06	0.04	0.38	1.56	1.49	3.43	11.1		
B <sub>1g</sub>																		< 1.55
B <sub>2g</sub>	20.6	0.09	0.02	4.5	5.0	3.9	1.3		0.30	0.07	0.03	0.40	2.48	0.78	3.66	10.9		
IIB <sub>3g</sub>	17.1				4.9	3.9	1.0		0.40	0.07	0.08	0.55	1.08	0.53	2.16	25.5		
<b>(HP<sub>hb</sub>, O)</b>																		
A <sub>1</sub>	17.9	0.93	0.09	10.3	5.3	4.4		1.1	2.57	0.69	0.15	0.05	3.46	0.24	2.17	5.87	58.9	
A <sub>2</sub>	16.2	0.50	0.05	10.0	5.0	3.9		0.3	1.78	0.40	0.10	0.03	2.31	0.81	1.76	4.88	47.3	
B <sub>2g</sub>	23.1	0.30	0.04	7.5	4.9	3.5		0.1	3.74	2.27	0.16	0.01	6.18	3.91	1.89	11.98	51.6	3.20
B <sub>3g</sub>	22.2	0.09	0.02	4.5	5.7	4.2		0.1	6.37	5.21	0.13	0.47	12.18	0.25	11.93	13.28	91.7	
C <sub>g</sub>	29.7	0.08	0.01	8.0	7.7	7.0		0.1	44.91	13.67	0.16	2.88	?	0	0		100	chlorides sulphates
<i>italics: partly originating from soluble salts</i>																		
<b>(HP<sub>hb</sub>, D)</b>																		
A <sub>1</sub>	23.1	2.65	0.22	12.0	4.8	3.9		1.5	3.12	1.07	0.24	0.03	4.46	1.11	6.31	11.88	37.5	
A <sub>2</sub>	20.9	0.56	0.08	7.0	4.6	3.7		0.4	1.34	0.88	0.15	0.08	2.45	3.41	2.59	8.45	29.0	
B <sub>2g</sub>	30.6	0.48	0.07	6.9	4.7	3.5		0.2	7.13	4.08	0.21	0.10	11.52	6.70	3.20	21.42	53.8	3.20
B <sub>3g</sub>	25.3	0.21	0.04	5.3	4.9	3.6		0.2	10.61	4.41	0.15	0.06	15.23	2.64	2.00	19.87	76.6	
C <sub>g</sub>	24.2	0.11	0.02	5.5	5.7	5.1		0.2	51.09	3.22	0.09	0.01	?	0	0.45	?	?	sulphates
<i>italics: partly originating from soluble salts</i>																		
<b>(HP<sub>hb</sub>, S)</b>																		
A <sub>1</sub>	17.0	1.28	0.12	10.7	5.5	4.6		1.1	3.09	1.24	0.15	0.03	4.51	0.16	3.60	8.27	54.5	
A <sub>21</sub>	15.3	0.65	0.07	9.3	5.8	4.5		0.3	2.42	1.22	0.13	0.03	3.80	0.24	2.37	6.41	59.3	
A <sub>22</sub>	16.5	0.37	0.05	7.4	5.7	4.3		0.5	2.52	1.60	0.15	0.02	4.29	0.41	2.29	6.99	61.4	
B <sub>21g</sub>	27.0	0.32	0.04	8.0	5.1	3.9		0.1	8.75	5.60	0.30	0.04	14.69	1.58	2.88	19.15	76.7	3.48
B <sub>22g</sub>	29.4	0.27	0.04	6.8	5.8	5.3		0.3	12.71	7.95	0.34	0.03	21.03	0	2.09	23.12	91.0	
C <sub>1g</sub>	25.3	0.28	0.03	9.3	8.2	7.3		0.6	16.14	6.25	0.20	0.03	?	0	0	?	100	carbonates
C <sub>2g</sub>	28.4	0.26	0.03	8.7	8.1	7.2		0.4	17.92	8.13	0.23	0.05	?	0	0	?	100	carbonates
<i>italics: partly originating from soluble salts</i>																		

No. prof. descr. de perfil	No. lab. IQA	Horizon	Depth profundidade cm	Granulometric composition of fine earth composição granulométrica da terra fina											Index of structure grau de flocação	Apparent bulk density massa espec. aparente g/cm <sup>3</sup> a.b.d.	Real bulk density massa espec. real g/cm <sup>3</sup> r.b.d.	Fine earth attacked by: ataque da terra fina por: H <sub>2</sub> SO <sub>4</sub> , d = 1.47					SiO <sub>2</sub> :Al <sub>2</sub> O <sub>3</sub> Ki	SiO <sub>2</sub> : (Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> ) Kr
				Coarse gravel calhaus % > 20 mm co.g.	Fine gravel cascalho % 20-2.0 mm f.g.	Fine earth terra fina % < 2.0 mm f.e.	coarse sand areia grossa % 2.0-0.2 mm co.s.	fine sand areia fina % 0.2-0.05 mm f.s.	silt silte % 0.05-0.02 mm si.	silt silte % 0.02-0.002 mm si.	clay argila % < 0.002 mm c.	'Natural' clay argila 'natural' % n.c.	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %				Fe <sub>2</sub> O <sub>3</sub> %	TiO <sub>2</sub> %	P <sub>2</sub> O <sub>5</sub> %				
<b>GROUND WATER HUMUS PODZOL</b>																								
47	32,696	A <sub>1</sub>	0-10	0	0	100	61.1	36.3	2.2	0.4	0	100			0.70	0.51	0.10	0.10	0.02	2.34	2.09			
	32,697	A <sub>2</sub>	10-45	0	0	100	59.0	39.2	1.2	0.6	0.2	67			0.52	0.41	0.20	0.08	0.02	2.18	1.64			
	32,698	B <sub>1h</sub>	45-60	0	0	100	58.4	35.6	1.8	4.2	1.4	67			1.97	1.64	0.30	0.31	0.02	2.04	1.82			
	32,699	B <sub>21hm</sub>	60-80	0	0	100	57.5	33.7	2.1	6.7	1.3	81			2.19	3.38	0.32	0.32	0.03	1.10	1.04			
	32,700	B <sub>22hm</sub>	80-110	0	0	100	55.0	36.3	1.5	7.2	1.5	79			2.23	3.54	0.32	0.26	0.03	1.07	1.01			
	32,701	B <sub>3</sub>	110-150	0	0.7	99.3	56.1	37.8	1.8	4.3	1.8	57			1.42	1.76	0.20	0.18	0.03	1.37	1.27			
<b>LOW HUMIC GLEY soil</b>																								
49	33,135	A <sub>1</sub>	0-7	0	0	100	9.9	10.4	50.0	29.7	11.3	62			21.34	11.07	5.66	0.60	0.14	3.28	2.47			
	33,136	C <sub>1g</sub>	7-18	0	0	100	4.2	9.5	35.3	51.0	36.0	29			23.17	13.99	9.51	0.77	0.06	2.81	1.96			
	32,137	C <sub>2g</sub>	18-50	0	0	100	2.0	1.8	32.8	63.4	47.2	26			25.31	17.85	9.45	0.89	0.06	2.41	1.80			
	33,138	C <sub>3g</sub>	50-110	0	0	100	40.1	14.6	25.1	20.2	0	100			10.87	8.96	2.60	0.47	0.05	2.06	1.74			
	33,139	C <sub>4g</sub>	110-130	0	0	100	4.1	16.6	56.5	22.8	18.5	19			10.58	7.26	1.22	0.68	0.03	2.48	2.24			
	33,140	C <sub>5g</sub>	130-240	0	0	100	2.1	13.3	43.1	41.5	31.0	25			17.65	13.63	3.91	0.79	0.04	2.20	1.86			
<b>HUMIC GLEY soil</b>																								
50	31,923	A <sub>1</sub>	0-25	0	0	100	0.1	29.4	30.8	39.7	17.5	56	1.17	2.53	23.53	13.22	3.95	0.44		3.03	2.54			
	31,924*	C <sub>1g</sub>	25-70	0	0	100	0.1	31.4	30.3	38.2	22.0	42	1.36	2.69	23.78	14.93	4.97	0.55		2.71	2.23			
	31,925	C <sub>2g-b</sub>	70-120	0	0	100	0	13.4	30.2	56.4	35.6	37	1.25	2.60	32.71	17.53	4.60	0.55		3.17	2.72			
* For full mineralogical analysis of all fractions see sample 188-2 of the Tables 7 and 8, Figs. 14a-e and Photo 11																								
<b>HUMIC GLEY soil, Upland phase</b>																								
51	31,547	A <sub>11</sub>	0-40	0	0	100	2.6	14.6	6.4	76.4	23.9	69	1.10	2.48	30.17	26.80	4.08	0.87		1.91	1.74			
		A <sub>12g</sub>	40-60																					
	31,548	C <sub>1g</sub>	60-100	0	0	100	4.6	23.3	2.5	69.6	5.8	92	1.23	2.63	27.60	25.27	4.03	1.00		1.86	1.69			
<b>SOLONETZ, Coastal phase</b>																								
52	31,862	A <sub>1</sub>	0-20	0	0	100	0.4	9.1	24.7	65.8	39.9	39	1.42	2.66	22.88	18.49	8.14	0.55		2.10	1.64			
	31,896	B <sub>21g</sub>	20-40	0	0	100	0.3	23.3	12.2	64.2	58.2	9	1.39	2.61	27.83	17.13	6.73	0.66		2.76	2.21			
	31,897*	B <sub>22g</sub>	40-140	0	0	100	0.3	24.3	20.4	55.0	53.9	2	1.46	2.71	22.35	14.61	7.10	0.58		2.60	1.99			
	31,898	B <sub>3g</sub>	140-210	0	0	100	0.5	18.4	19.8	61.3	60.7	1	1.41	2.70	25.28	16.99	8.07	0.69		2.53	1.94			
* For full mineralogical analysis of all fractions see sample 175-3 of the Tables 7 and 8																								
<b>TERRA PRETA, light textured</b>																								
53	30,061	A <sub>p</sub>	0-35				63.9	21.2	5.8	9.1	4.1	55			4.28	3.94	1.33		0.37	1.85	1.52			
	30,062	A <sub>s</sub>	35-70				65.7	21.9	1.8	10.6	6.3	41			4.67	4.29	1.32		0.18	1.85	1.54			
	30,063	B <sub>21</sub>	70-100				65.7	21.1	1.6	11.6	7.2	38			5.24	3.97	1.31		0.14	2.24	1.85			
	30,064	B <sub>22</sub>	100-160				66.1	20.0	1.2	12.7	7.8	39			5.68	5.29	1.51		0.14	1.82	1.54			



Cation exchange complex/complexo de troca catiônica (m.e./100 g)

Horizon horizonte	Moisture equivalent equivalente de umidade g/100 g M.E.	C org. %	N total %	C/N	pH		P <sub>2</sub> O <sub>5</sub> available assimilável mg/100 g Truog Bray	exchangeable metallic cations bases trocáveis				sum of cations soma das bases S	active acidity acidez ariva (Al) <sup>+</sup>	pH-depend. acidity acidez pH-depend. H <sup>+</sup>	potential cation exchange capacity capac. total de troca T	Base saturation saturação de bases %	Soluble salts sais solúveis m.e./100 g s.s.	Textural ratio relação textural B/A	
					H <sub>2</sub> O	KCl		Ca <sup>++</sup>	Mg <sup>++</sup>	K <sup>+</sup>	Na <sup>+</sup>								
(GP)																			
A <sub>1</sub>	3.0	0.60	0.05	12.0	5.1	4.2	0.7	1.9	0.84	0.05	0.02	0.91	0.12	1.28	2.31	39.4			
A <sub>2</sub>	2.1	0.10	0.01	10.0	5.1	3.8	0.5	0.6	0.30	0.03	0.02	0.35	0.16	0.44	0.95	36.8			
B <sub>1h</sub>	4.8	0.40	0.04	10.0	4.6	3.7		1.9	0.30	0.03	0.02	0.35	0.80	2.21	3.36	10.4			
B <sub>21hm</sub>	10.4	1.89	0.13	14.5	4.9	4.2		0.7	0.23	0.06	0.02	0.31	1.94	10.34	13.59	2.3		5.0	
B <sub>22hm</sub>	9.9	1.81	0.12	15.3	5.2	4.5		0.4	0.27	0.07	0.02	0.36	0.97	10.18	11.51	3.1			
B <sub>3</sub>	5.5	0.60	0.04	15.0	5.7	4.8		1.9	0.26	0.08	0.03	0.37	0.24	3.01	3.62	10.2			
(LHG)																			
A <sub>1</sub>		12.41	0.94	13.2	5.8	5.2		3.1	14.05	6.35	0.63	0.31	21.34	0.26	13.89	35.49	60.1		
C <sub>1g</sub>	49.3	2.60	0.25	10.4	5.7	5.0		0.7	6.18	3.77	0.44	0.19	10.58	0.10	5.32	16.00	66.1		
C <sub>2g</sub>	47.3	1.91	0.16	11.9	5.4	4.4		0.5	5.79	4.17	0.22	0.15	10.33	0.25	4.48	15.06	68.6		
C <sub>3g</sub>		13.51	0.63	21.4	3.3	3.2		0.7	4.03	1.93	0.66	0.30	6.92	18.30	34.49	55.71	11.6		
C <sub>4g</sub>	20.8	0.91	0.05	18.2	4.1	3.5		0.9	0.77	0.73	0.15	0.14	1.79	1.95	2.49	6.23	28.7		
C <sub>5g</sub>	26.9	0.34	0.04	8.5	4.5	3.5		0.6	0.66	0.87	0.07	0.06	1.66	4.09	2.22	7.97	20.8		
(HG)																			
A <sub>1</sub>	43.1	2.69	0.32	8.4	4.8	3.8	2.0		8.18	6.97	0.99	0.29	16.43	0.72	4.90	22.05	74.5		
C <sub>1g</sub>	34.6	0.47	0.09	5.2	5.2	3.9	1.0		7.43	7.23	0.31	0.45	15.42	0.52	1.56	17.50	88.1		
C <sub>2g-b</sub>	41.4	0.71	0.12	5.9	4.9	3.6	1.0		9.37	8.61	0.29	1.30	19.57	1.32	2.45	23.34	83.8	0.26	
(HG, v)																			
A <sub>11</sub>	40.2	3.19	0.19	16.8	4.8	3.9	1.4		0.42	0.17	0.04	0.63		13.32	13.95	4.5			
A <sub>12g</sub>																			
C <sub>1g</sub>	34.6	1.42	0.08	17.8	5.0	4.0	1.0		0.29	0.08	0.02	0.39		5.76	6.15	6.3			
(Sol, c)																			
A <sub>1</sub>	38.1	1.16	0.13	8.9	5.0	3.8	2.0		2.86	11.24	0.73	1.56	16.39		5.73	22.12	74.1	1.06	
B <sub>21g</sub>	47.3	1.18	0.12	9.8	5.3	4.2	1.0		2.93	8.41	0.51	8.02	19.87	0.16	4.55	24.58	80.8	3.75	
B <sub>22g</sub>	48.5	0.25	0.04	6.3	8.0	6.8	3.8		3.12	9.44	0.54	8.40	21.50	0	0	21.50	100	6.24	
B <sub>3g</sub>	57.0	0.21	0.04	5.3	7.9	6.9	3.8		3.34	10.71	0.80	7.90	22.75	0	0	22.75	100	7.86	
(TP <sub>1</sub> )																			
A <sub>p</sub>	11.5	1.66	0.13	12.8	5.6	4.7	98.8		3.97	0.43	0.08	0.04	4.52		5.14	9.66	47		
A <sub>s</sub>	7.9	0.66	0.04	16.5	5.6	4.6	43.1		2.32	0.30	0.10	0.03	2.75		3.60	6.35	44		
B <sub>21</sub>	7.6	0.41	0.03	13.7	5.7	4.6	31.2		1.71	0.48	0.05	0.01	2.25		1.96	4.21	54		
B <sub>22</sub>	7.7	0.38	0.03	12.7	5.5	4.3	18.0		1.13	0.42	0.05	0.01	1.61		2.25	3.86	51		