

THICK SANDY LOAM OVER RED AND BROWN CLAY

General Description: *Thick hard sandy loam over a red and brown mottled clay grading to alluvium.*

Landform: Flats and terraces of major water courses

Substrate: Medium to coarse grained alluvium.

Vegetation:



Type Site: Site No.: CM100

1:50,000 sheet: 6630-2 (Apoinga) Hundred: Stanley
 Annual rainfall: 575 mm Sampling date: 12/05/04
 Landform: Terrace of Wakefield River
 Surface: Hard setting with no stones. Water table at 170 cm.

Soil Description:

Depth (cm)	Description
0-11	Dark brown firm massive sandy loam. Clear to:
11-40	Light brown very hard massive sandy loam with a 2 cm thick bleached layer at base. Abrupt to:
40-60	Dark brown, dark reddish brown and strong brown mottled extremely hard medium heavy clay with strong coarse prismatic breaking to medium blocky structure. Gradual to:
60-85	Dark brown and brown mottled hard medium clay with moderate coarse prismatic breaking to medium lenticular structure. Gradual to:
85-105	Dark brown, yellowish brown and strong brown mottled firm moderately calcareous medium clay with weak coarse prismatic breaking to strong fine polyhedral structure and 2-10% carbonate nodules (2-6 mm). Gradual to:
105-170	Strong brown and yellowish brown mottled massive friable (moist) fine sandy clay loam.
170-	Water table.



Classification: Hypocalcic, Mottled-Subnatric, Brown Sodosol; thick, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Imperfectly drained. The poorly structured clayey subsoil perches water so that saturation of part of the profile is likely for several weeks following heavy or prolonged rainfall. Drainage is further impeded by the water table which will be higher in late winter / spring.

Fertility: Inherent fertility is moderately low as indicated by the exchangeable cation data. The low clay content of the surface layers provides limited capacity for nutrient retention. However, there is ample capacity in the subsoil. Apart from nitrogen and phosphorus, this soil is not naturally susceptible to specific deficiencies, but given the low clay content, regular monitoring is desirable.

pH: Slightly acidic at the surface, alkaline with depth.

Rooting depth: 105 cm in pit, but few roots below 85 cm.

Barriers to root growth:

Physical: The massive dense subsurface restricts root density, and root growth is largely confined to the surfaces of subsoil clay aggregates.

Chemical: There are no apparent chemical barriers.

Water holding capacity: Approximately 110 mm (total available) for annual crop and pasture plants. Approximately 30 mm (readily available) in potential grape vine rootzone of 60 cm.

Seedling emergence: Fair due to poorly structure surface soil.

Workability: Fair. Soil puddles if worked too wet and shatters if worked too dry.

Erosion Potential

Water: Low due to flatness.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-11	6.6	6.3	0	0.20	1.878	86	1.61	28	294	19	1.0	-	-	-	-	5.9	3.85	0.89	0.35	0.77	5.9
11-40	6.1	5.6	0	0.06	0.401	16	0.65	13	243	12	0.8	-	-	-	-	5.4	3.15	1.47	0.29	0.45	5.4
40-60	7.4	6.4	0	0.14	0.662	68	0.74	4	445	28	2.2	-	-	-	-	24.0	9.94	10.8	2.17	1.12	9.0
60-85	8.3	7.4	0.4	0.31	1.902	272	0.54	2	451	66	5.4	-	-	-	-	29.7	11.4	13.8	3.34	1.18	11.2
85-105	9.0	7.9	0.7	0.36	2.17	273	0.39	5	397	61	2.7	-	-	-	-	22.2	9.28	9.22	2.71	0.97	12.2
105-170	8.8	7.8	0.4	0.34	2.39	218	0.35	5	366	43	1.0	-	-	-	-	12.7	6.37	4.31	1.44	0.60	11.3

Note: Sum of cations is an estimate of cation exchange capacity, a measure of the soil's capacity to store and release nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the sum of cations.