

ACIDIC SANDY LOAM OVER RED MOTTLED CLAY ON ROCK

General Description: *Brown sandy loam to loam with a bleached A2 horizon overlying a red and brown mottled clay subsoil grading to weathering medium to fine grained metamorphosed rock within 150 cm*

Landform: Slopes of undulating to rolling rises and low hills of the Central Mt. Lofty Ranges

Substrate: Metamorphosed fine sandstone or siltstone

Vegetation: Blue gum woodland

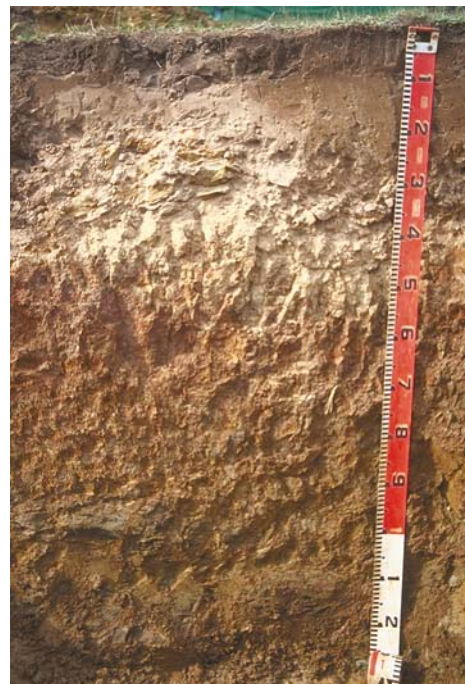


Type Site: Site No.: CH061

1:50,000 sheet:	6627-1 (Echunga)	Hundred:	Macclesfield
Annual rainfall:	700 mm	Sampling date:	17/03/94
Landform:	Upper slope of rolling low hills, 15% slope		
Surface:	Firm with minor stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark brown massive sandy loam. Clear to:
10-30	Brown massive light sandy loam with 10% quartz and sandstone gravel. Clear to:
30-45	Pink massive sandy loam with 20-50% sandstone and ironstone gravel. Sharp to:
45-60	Red, dark brown and yellowish brown mottled medium heavy clay with strong very coarse angular blocky structure. Gradual to:
60-100	Yellowish brown, dark brown and red mottled medium heavy clay with strong very coarse prismatic structure. Clear to:
100-140	Weathering metamorphosed sandstone with 50% brown, orange and yellow medium clay in rock fissures.



Classification: Bleached-Mottled, Eutrophic, Red Chromosol; thick, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage	Moderately well to imperfectly drained. A perched water table will develop above the clay layer in most years, leading to subsurface waterlogging for a week to several weeks at a time.
Fertility	The inherent fertility is moderately high but nutrient status is low due to cation leaching. The low clay content in the surface layers exacerbates the problem. Potassium, calcium and magnesium are all low. Phosphorus and copper levels are also low. Organic carbon levels are moderate.
pH	Acidic at the surface, neutral with depth. Lime and dolomite are required to correct problem and maintain satisfactory calcium / magnesium ratios.
Rooting depth	100 cm in pit, but few roots below 60 cm.
Barriers to root growth	
Physical:	Waterlogging on the clay layer stunts root growth resulting in insufficient root volume to exploit subsoil moisture and nutrient reserves.
Chemical:	There are no chemical barriers, but aluminium toxicity may become a problem if the pH falls further.
Water holding capacity	110 mm in root zone, but up to a half is unavailable due to low root densities.
Seedling emergence	Fair to good.
Workability	Fair to good. Poor structure limits cultivation opportunities to a degree.
Erosion Potential	
Water:	Moderately high.
Wind:	Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CaCO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	5.0	4.4	0	0.08	0.81	1.8	18	111	-	0.9	1.7	860	36	3.9	7.0	3.02	0.61	0.16	0.31	2.3
											*0.6	*316	*19	*3.2						
0-10	5.4	4.8	0	0.09	0.72	1.8	83	284	-	1.0	1.7	990	42	3.9	8.3	4.49	0.85	0.16	0.43	1.9
10-30	5.3	4.6	0	0.03	0.39	0.4	10	95	-	0.4	0.9	240	18	0.61	3.1	0.95	0.26	0.14	0.20	na
30-45	5.6	4.7	0	0.02	0.25	0.3	6	90	-	0.5	0.7	120	36	0.85	2.9	1.03	0.34	0.12	0.26	na
45-60	6.4	5.4	0	0.05	0.30	0.9	<4	370	-	2.4	3.5	1400	2.0	0.28	16.9	6.07	6.53	0.50	1.40	3.0
60-100	6.9	6.1	0	0.07	0.18	0.3	<4	253	-	2.9	-	-	-	-	17.7	5.63	8.96	0.66	1.02	3.7
100-140	6.9	6.1	0	0.06	0.32	0.1	<4	111	-	1.7	-	-	-	-	12.8	3.57	7.48	0.66	0.36	5.2

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.

* DTPA trace element analyses for "paddock" sample.

CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.