

SANDY LOAM OVER BROWN CLAY

General Description: *Thick, massive loamy surface soil overlying a deep brown and yellow mottled clayey subsoil developing in deeply weathered fine grained metamorphosed sandstone.*

Landform: Lower and mid slopes of undulating to rolling low hills.

Substrate: Deeply weathered kaolinized fine grained metamorphosed sandstones of Precambrian age (Tarcowie Siltstone at type site).

Vegetation: Blue gum woodland.



Type Site:	Site No.:	CH001	1:50,000 mapsheet:	6627-1 (Echunga)
	Hundred:	Macclesfield	Easting:	301550
	Section:	3713	Northing:	6110850
	Sampling date:	19/12/91	Annual Rainfall:	850 mm average

Lower slope of undulating rise, 7% slope. Hard setting surface, no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark greyish brown moderately granular fine sandy loam. Clear to:
10-20	Dark greyish brown weakly structured fine sandy loam. Abrupt to:
20-35	Pale brown weakly structured fine sandy loam with 40% quartz and ferricrete gravels. Clear to:
35-45	Yellowish brown, yellowish red and brownish grey mottled medium clay with coarse prismatic structure. Clear to:
45-80	Yellowish brown and reddish brown mottled heavy clay with strong polyhedral structure. Gradual to:
80-120	Brownish yellow and pale brown medium heavy clay with coarse blocky structure. Diffuse to:
120-180	Massive soft white, brown and red silty clay loam (kaolinitic weathering rock).



Classification: Bleached-Mottled, Mesotrophic, Brown Kurosol; thick, non-gravelly, loamy/clayey, very deep



Summary of Properties

- Drainage:** Imperfectly to moderately well drained. The soil may remain wet for a week to several weeks.
- Fertility:** Moderately low, as indicated by the relatively low values for exchangeable cations. Magnesium and potassium are deficient. Other nutrient element levels are satisfactory. Organic carbon is high.
- pH:** Strongly acid at the surface, grading to acid with depth. Dolomite is required for correction.
- Rooting depth:** 120 cm at type site.
- Barriers to root growth:**
- Physical:** Poor surface soil structure and high subsoil clay strength prevent optimal root proliferation. Waterlogging and temporary saturation of the 20 - 35 cm layer inhibit root growth.
- Chemical:** Acidity and possible aluminium toxicity in upper 50 cm may inhibit root growth.
- Waterholding capacity:** 140 - 180 mm in rootzone (very high). Not all of this is available to plants because of poor root distribution, particularly if subsurface waterlogging has prevented satisfactory downward extension of roots.
- Seedling emergence:** Fair due to poorly structured surface.
- Workability:** Fair, due to poorly structured surface with narrow moisture range for effective working.
- Erosion potential:**
- Water:** Moderate, due to the slope and high soil erodibility caused by poorly structured surface and slowly permeable subsoil.
- Wind:** Low.

Laboratory Data

Depth cm	Sand %	Silt %	Clay %	pH H ₂ O	pH CaCl ₂	EC1:5 dS/m	Cl mg/kg	Org. C %	Avail. P mg/kg	Avail. K mg/kg	Boron mg/kg	Trace elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cationscmol(+)/kg				ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	76	11	13	5.4	5.4	0.08	37	3.6	39	118	1.5	0.6	165	5.6	0.9	12.6	7.4	1.0	0.16	0.14	1
10-20	78	14	9	4.3	4.2	0.05	11	3.0	52	67	0.8	0.6	205	4.6	0.8	6.9	2.2	0.4	0.10	0.06	1
20-35	76	11	13	4.5	4.4	0.04	<5	-	-	-	0.6	0.3	52	2.3	0.3	3.9	1.3	0.2	0.08	0.05	2
35-45	42	9	49	4.8	4.4	0.04	6	-	-	-	2.2	0.3	30	1.2	0.3	7.3	3.3	1.4	0.13	0.09	2
45-80	21	7	72	5.2	5.2	0.07	18	-	-	-	3.7	0.1	3.5	<0.2	0.1	12.1	4.3	4.8	0.26	0.12	2
80-120	28	11	61	5.4	5.4	0.07	9	-	-	-	2.8	0.1	3.4	<0.2	0.1	10.0	2.9	5.3	0.31	0.09	3
120-180	53	19	28	5.3	5.3	0.06	19	-	-	-	2.2	0.5	2.8	<0.2	0.2	3.4	1.6	2.6	0.22	0.04	6

Note: 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.

Further information: [DEWNR Soil and Land Program](#)

