

THICK SAND OVER CLAY

General Description: *Thick sand to soft light sandy loam over a coarsely structured brown clay*

Landform: Gently undulating plain.

Substrate: Clay.

Vegetation: Eucalyptus camaldulensis (red gum).



Type Site:	Site No.:	SE060	1:50,000 mapsheet:	7023-3 (Monbulla)
	Hundred:	Monbulla	Easting:	473050
	Section:	156	Northing:	5853700
	Sampling date:	02/04/1997	Annual rainfall:	705 mm average

Upper slope of gentle undulation, 0.5% slope. Firm surface with no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-17	Very dark greyish brown soft light sandy loam with weak polyhedral structure. Clear to:
17-35	Dark greyish brown loose single grain loamy sand with 2-10% ferromanganiferous nodules (2-6 mm). Clear to:
35-49	Brown loose single grain sand with 10-20% ferromanganiferous nodules (2-20 mm). Abrupt to:
49-67	Dark yellowish brown, greyish brown and red mottled firm medium clay with coarse prismatic breaking to angular blocky structure. Gradual to:
67-106	Brownish yellow, red and brown firm medium clay with coarse prismatic structure. Gradual to:
106-128	Brownish yellow firm massive fine sandy medium clay. Clear to:
128-158	Light grey and strong brown mottled firm massive fine sandy medium clay. Abrupt to:
158-180	Yellowish brown and light grey friable massive moderately calcareous light medium clay with 10-20% carbonate concretions (2-6 mm).



Classification: Calcic, Mottled-Mesonatric, Brown Sodosol; thick, non-gravelly, sandy / clayey, very deep



Summary of Properties

Drainage:	Moderately well drained. Water perches on the clayey subsoil for up to a week following heavy or prolonged rainfall.
Fertility:	Inherent fertility is low. There is insufficient clay at the surface to provide adequate nutrient retention capacity - it must be supplemented by organic matter. Calcium, magnesium, potassium, zinc and copper levels are all marginal at sampling site.
pH:	Acidic at the surface, alkaline with depth.
Rooting depth:	180 cm in pit, but few roots below 67 cm.
Barriers to root growth:	
Physical:	The coarsely structured clay restricts root density, as most roots are confined to the surfaces of the aggregates.
Chemical:	None apparent, although high sodicity below 100 cm may restrict growth of deeper roots.
Waterholding capacity:	Approximately 100 mm in the rootzone.
Seedling emergence:	Satisfactory except where water repellent.
Workability:	Firm surface is easily worked.
Erosion Potential:	
Water:	Low.
Wind:	Moderately low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	4.7	4.0	-	0.11	-	1.50	24	113	7.9	0.9	0.25	294	3.92	0.55	-	1.97	0.36	0.16	0.27	na
0-17	4.9	4.2	-	0.08	-	1.47	28	84	6.7	0.7	0.38	381	2.97	0.53	-	1.18	0.19	0.14	0.24	na
17-35	5.1	4.4	-	0.02	-	0.43	22	39	2.6	0.4	0.06	148	1.33	0.24	-	0.36	0.11	0.03	0.09	na
35-49	5.6	4.8	-	0.02	-	0.24	12	45	2.0	0.3	0.13	106	1.59	0.09	-	0.39	0.10	0.05	0.07	na
49-67	7.2	6.1	-	0.10	-	0.57	1	279	10	1.1	0.05	21	0.92	0.07	-	5.90	7.64	2.53	0.72	15.1
67-106	7.9	6.8	-	0.20	-	0.24	1	264	36	1.6	0.08	7.2	1.10	0.08	-	5.33	10.13	4.57	0.73	22.0
106-128	8.6	7.5	-	0.20	-	0.12	1	219	29	2.1	0.12	3.4	0.83	0.08	-	3.98	8.54	4.68	0.52	26.4
128-158	8.8	7.7	-	0.18	-	0.05	1	204	24	2.4	0.14	2.4	0.92	0.10	-	3.91	8.44	4.95	0.53	27.8
158-180	9.4	8.4	-	0.46	-	0.09	1	250	26	1.6	0.15	5.8	1.64	ns	-	8.94	12.31	7.48	0.62	25.5

Note: Paddock sample bulked from cores (0-10 cm) taken around the pit.
 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.
 CEC at this site is estimated from the sum of exchangeable cations.

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

