VERY THICK HIGHLY LEACHED SAND OVER BROWN CLAY

General Description: Very thick highly leached acid sand over poorly structured brown clay

becoming mottled with depth. Iron-organic layer present in lower

sandy horizons.

Landform: Poorly drained plain with

very slight undulations.

Substrate: Mottled clays of the

Padthaway Formation.

Vegetation: Brown stringybark

(Eucalyptus. baxteri), yakka

(Xanthorrhea sp)

Type Site: Site No.: SE103 1:50,000 mapsheet: 7023-3 (Monbulla)

Hundred:MonbullaEasting:465510Section:245Northing:5864320

Sampling date: 18/07/2005 Annual rainfall: 685 mm average

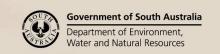
Very gently undulating plain. Soft surface with no stones.

Soil Description:

Depth (cm)	Description
0-21	Loose black single grain loamy sand. Gradual to:
21-35	Very dark grey single grain sand. Diffuse to:
35-50	Dark greyish brown single grain sand. Diffuse to:
50-65	Greyish brown single grain sand. Diffuse to:
65-77	Light brownish grey (bleached when dry) single grain sand. Sharp to:
77-88	Reddish black massive sandy loam. Abrupt to:
88-112	Yellowish brown single grain sand. Sharp to:
112-130	Yellowish brown and light yellowish brown mottled massive sandy clay loam. Clear to:
130-150	Yellowish brown and light grey mottled massive, wet medium clay.



Classification: Melacic, Humosesquic, Semiaquic Podosol; thick, non-gravelly, sandy / loamy, moderate





Summary of Properties

Drainage: The sandy upper part of the profile is highly permeable, but water perches on top of

the clay from 60 cm. The clay becomes moderately waterlogged and is slow to drain.

Drainage is further restricted by the low flat topography.

Fertility: Inherent fertility is very low. P levels are low, with high levels in the iron/organic

layer (77-88 cm) indicative of the high leaching through the sand above. K status is very low in the upper profile. Sulphur and trace copper, manganese and zinc are low.

Organic carbon is high, probably relating to the infertile, acid conditions and

subsequent low microbial activity.

pH: Moderately acidic at the surface. Strongly acidic from 21 cm to 88 cm.

Rooting depth: 88 cm in pit, with most roots in the 0-50 cm depth range.

Barriers to root growth:

Physical: No physical barriers

Chemical: Low fertility and strong acidity are the main limitations to root development.

Waterholding capacity: 60 mm in potential rootzone.

Seedling emergence: Water repellence is a potential problem.

Workability: Sandy surfaces are easily worked.

Erosion Potential:

Water: Low

Wind: Moderate potential if surface vegetation cover is not maintained.

Laboratory Data

Depth cm	pH H ₂ O	pH CaC1 ₂	NO ₃ mg/kg	EC 1:5 dS/m	ECe dS/m	Org.C %	P	Avail. K	Cl mg/kg		Boron mg/kg	Trace Elements mg/kg (EDTA)				cations	Exchangeable Cations cmol(+)/kg				Exch Al
							mg/kg	mg/kg				Cu	Fe	Mn	Zn	cmol (+)/kg	Ca	Mg	Na	K	
0-21	5.8	5.0	16	0.066	0.68	2.10	10	21	9	5.6	0.4	0.07	60	1.17	0.27	5.6	4.99	0.46	0.09	0.06	0.03
21-35	4.7	4.0	3	0.03	0.31	0.68	2	15	8	3.0	0.2	0.07	16	< 0.1	0.23	0.7	0.57	0.04	0.03	0.03	0.08
35-50	4.7	4.1	3	0.024	0.26	0.34	2	15	6	2.3	< 0.1	0.10	15	< 0.1	0.0	0.3	0.20	0.02	0.03	0.03	0.06
50-65	4.7	4.1	3	0.019	0.22	0.30	2	15	4	2.2	0.2	0.10	9	0.30	0.20	0.2	0.16	0.02	0.03	0.03	0.06
65-77	5.4	4.3	3	0.037	0.20	0.19	2	16	4	2.0	0.1	0.0	5	1.00	0.11	0.2	0.12	0.01	0.02	0.03	0.06
77-88	4.9	4.1	15	0.065	0.57	4.55	26	15	11	10.0	0.3	0.05	198	0.39	0.05	2.4	2.13	0.10	0.09	0.05	3.50
88-112	6.4	5.8	3	0.018	0.21	0.18	2	15	4	4.1	< 0.1	0.0	26	0.35	0.0	0.5	0.33	0.06	0.10	0.03	0.25
112-130	6.6	5.7	1	0.056	0.54	0.19	2	25	15	11.4	0.3	0.08	19	0.57	0.12	3.5	1.58	1.32	0.48	0.08	0.00
130-150	6.5	5.9	1	0.112	0.40	0.13	2	72	39	58.2	1.0	0.17	10	1.02	0.21	10.7	4.92	4.46	1.09	0.24	0.00

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), but this approximation is invalid in this acidic soils due to unknown levels of exchangeable hydrogen.

Further information: DEWNR Soil and Land Program



