

THICK SAND OVER CLAY

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

Landform: Level plain.

Substrate: Clay.

Vegetation:



Type Site:	Site No.:	SE058	1:50,000 mapsheet:	7023-3 (Monbulla)
	Hundred:	Riddoch	Easting:	464300
	Section:	52	Northing:	5850900
	Sampling date:	24/10/1996	Annual rainfall:	725 mm average

Flat, 0% slope. Firm surface with no stones.

Soil Description:

Depth (cm)	Description
0-17	Dark brown soft light sandy loam with weak polyhedral structure. Gradual to:
17-30	Light brown loose single grain fine sand. Clear to:
30-42	Light brown loose sand with weak subangular blocky structure and 20-50% ferromanganiferous nodules and concretions (2-20 mm). Abrupt to:
42-58	Brown and yellowish brown firm light medium clay with strong coarse columnar breaking to subangular blocky structure. Gradual to:
58-82	Yellowish brown and red firm medium clay with moderate subangular blocky structure. Diffuse to:
82-112	Pale brown, yellowish brown and red firm fine sandy medium clay with weak subangular blocky structure. Gradual to:
112-140	Yellowish brown and light grey friable massive fine sandy light clay.



Classification: Bleached-Ferric, Eutrophic, Brown Chromosol; thick, non-gravelly, sandy / clayey, deep



Summary of Properties

Drainage: Imperfectly drained. Water perches on the clayey subsoil, and may keep the profile saturated for several weeks following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. Nutrient retention capacity is limited by low topsoil clay content - organic matter provides a substantial proportion of capacity. The data indicate that phosphorus, calcium, magnesium, potassium and copper may be deficient.

pH: Acidic at the surface, neutral with depth.

Rooting depth: 82 cm in pit.

Barriers to root growth:

Physical: The coarsely structured clay subsoil restricts root growth - roots are confined to the surfaces of the aggregates, so densities are low.

Chemical: There are no chemical barriers, although low topsoil nutrient status and retention capacity retard root growth.

Waterholding capacity: Approximately 90 mm in the rootzone.

Seedling emergence: Satisfactory.

Workability: The firm surface is easily worked.

Erosion Potential:

Water: Low.

Wind: 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	Exch Al mg/kg	
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K			
Paddock	5.7	4.7	0	0.06	0.39	1.96	23	120	6.3	1.2	0.25	121	11.3	2.41	5.5	3.39	0.45	0.12	0.25	2.2	7.5	
											*0.42	*150	*16.8	*2.87								
0-17	5.6	4.7	0	0.03	0.25	1.19	21	88	4.3	0.7	0.11	87	3.82	0.78	3.2	1.95	0.26	0.07	0.14	2.2	5.8	
17-30	5.2	4.4	0	0.02	0.18	0.43	38	48	2.4	0.4	0.09	96	1.22	0.37	1.6	0.60	0.07	0.07	0.06	na	13.5	
30-42	5.1	4.4	0	0.03	0.19	0.36	66	59	2.4	0.5	0.11	156	1.21	0.20	1.8	0.69	0.15	0.07	0.08	na	21.6	
42-58	5.8	4.9	0.4	0.06	0.15	1.18	6	280	5.6	1.2	0.11	88	2.10	0.09	19.9	10.01	4.45	0.46	0.81	2.3	19.8	
58-82	6.1	5.5	0.5	0.06	0.14	0.39	2	199	28.5	1.2	0.03	13	0.86	0.05	15.2	7.51	4.71	0.49	0.57	3.2	2.1	
82-112	6.1	5.6	0.3	0.07	0.19	0.19	2	156	39.1	1.0	0.06	8.8	0.91	0.05	13.2	7.13	3.96	0.58	0.39	4.4	2.0	
112-140	7.4	6.3	0.3	0.06	0.18	0.11	2	118	15.1	0.8	0.05	6.9	0.79	0.03	16.1	9.36	3.58	0.68	0.27	4.2	1.9	

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

* EDTA trace element analyses on "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.

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

