

THICK SAND OVER GREY SANDY CLAY

General Description: *Medium to thick sand over a reddish sandy clay loam to sandy clay, highly calcareous at depth*

- Landform:** Undulating plain with frequent closely spaced parallel sandhills.
- Substrate:** Tertiary sandy clay (Parilla Sand equivalent).
- Vegetation:** Mallee



- Type Site:** Site No.: MM136
- | | | | |
|------------------|----------------------|----------------|----------|
| 1:50,000 sheet: | 6928-3 (Halidon) | Hundred: | Chesson |
| Annual rainfall: | 300 mm | Sampling date: | 22/02/99 |
| Landform: | Swale | | |
| Surface: | Loose with no stones | | |

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-9	Brown loose loamy sand. Abrupt to:
9-45	Reddish yellow loose sand. Sharp to:
45-63	Grey and yellowish red very hard sandy medium clay with coarse columnar structure. Clear to:
63-108	Red and light grey friable (moist) very highly calcareous sandy light clay with coarse blocky structure and 20-50% fine carbonate segregations. Gradual to:
108-155	Red and light brownish grey friable (moist) highly calcareous sandy clay loam with weak coarse blocky structure.



Classification: Calcic, Mottled-Subnatric, Grey Sodosol; thick, non-gravelly, sandy / clayey, deep

Summary of Properties

Drainage	Imperfectly drained. Water perches on the dispersive clayey subsoil for a week or more at a time following heavy or prolonged rainfall.
Fertility	Inherent fertility is low as indicated by the exchangeable cation data. Regular phosphorus applications are necessary. Nitrogen levels depend on cropping history and legume status of pastures. Zinc and copper deficiencies are likely. P, Cu and Zn are all deficient at sampling site. Organic carbon levels are also low.
pH	Slightly alkaline at the surface, strongly alkaline with depth.
Rooting depth	Not recorded. Estimate 63 cm, with few roots below 45 cm, from pit data.
Barriers to root growth	
Physical:	The dense, dispersive subsoil clay restricts root growth to the surfaces of aggregates, thereby reducing water uptake capacity.
Chemical:	High pH and sodicity from 63 cm prevent significant deeper root growth.
Water holding capacity	Approximately 55 mm in the root zone.
Seedling emergence:	Satisfactory, although water repellence may reduce establishment in dry seasons.
Workability:	Soft / loose surface is easily worked.
Erosion Potential	
Water:	Low.
Wind:	Moderate.

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 -S 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	7.7	7.7	0.2	0.09	1.2	0.47	7	112	-	1.0	0.2	-	2.1	0.2	4.0	2.7	0.71	< 0.1	0.24	2.5
0-9	7.4	7.2	< 0.1	0.09	1.2	0.57	10	123	-	0.8	0.1	-	2.4	0.2	4.1	3.6	1.1	< 0.1	0.42	2.4
9-45	7.6	7.3	< 0.1	0.05	0.7	0.06	1	48	-	0.4	0.1	-	0.6	0.1	2.0	1.0	0.4	< 0.1	0.09	na
45-63	9.1	8.1	< 0.1	0.11	1.0	0.12	3	192	-	1.7	0.1	-	0.1	0.1	13.6	4.1	5.6	2.0	0.48	14.7
63-108	9.7	8.2	17	0.36	3.4	0.12	1	642	-	5.0	0.8	-	0.3	0.2	13.8	3.3	6.9	3.8	0.52	27.5
108-155	9.7	8.7	1.2	0.35	4.9	0.05	2	105	-	5.1	0.4	-	0.1	0.1	10.1	1.2	4.8	4.0	0.35	39.6

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.