LOAMY SAND OVER RED CLAY ON CALCIFIED ROCK

General Description: *Loamy sand to sandy loam over a red strongly structured clay, calcareous with depth, grading to basement rock within 100 cm.*

Landform: Undulating rises and low hills.

Substrate: Kanmantoo Group schist mantled by fine carbonate.

Vegetation:

Type Site: Site No.: MO025

1:50,000 sheet:	6727-4 (Monarto)	Hundred:	Monarto
Annual rainfall:	375 mm	Sampling date:	1976
Landform:	Mid slope of undulating low hills, 7% slope		
Surface:	Firm surface with minor stones		

Soil Description:

Depth (cm)	*Description*
0-10	Dark reddish brown soft loamy sand. Clear to:
10-22	Light reddish brown soft massive sandy loam with 2-10% quartz gravel (6-20 mm). Clear to:
22-36	Dark reddish brown firm medium clay with strong prismatic (breaking to angular blocky) structure. Clear to:
36-50	Very pale brown very highly calcareous soft massive sandy clay loam with 10-20% fine carbonate segregations. Gradual to:
50-65	Brownish yellow massive calcareous silty loam with 10-20% schist gravel. Gradual to:
65-85	Light yellowish brown calcareous sandy loam – weathering schist. Gradual to:
85-100	Highly weathered schist with 2-10% fine carbonate in fissures.

Classification: Hypercalcic, Subnatric, Red Sodosol; medium, non-gravelly, sandy / clayey, moderate

Summary of Properties

Drainage: Well drained. The soil rarely remains wet for more than a few days following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. Surface nutrient retention is adequate although not ideal due to relatively low clay content, but there are ample subsoil reserves of macro nutrients. The only significant deficiencies are likely to be phosphorus and nitrogen.

pH: Neutral at the surface, strongly alkaline with depth.

Rooting depth: Not recorded. Estimate 50 cm in pit.

Barriers to root growth:

Physical: Hard basement rock is the major limitation – depth is critical.

Chemical: High pH in the subsoil limits root zone depth.

Water holding capacity: Approximately 50 mm in the root zone.

Seedling emergence: Satisfactory to fair due to tendency of surface soil to seal over and set hard.

Workability: Surface is sufficiently sandy that it is readily worked over a range of moisture conditions.

Erosion Potential

Water: Moderate to moderately high.

Wind: Low.

Laboratory Data

Depth cm	Coarse sand %	Fine sand %	Silt %	Clay %	pH H_2O	CO_3 %	EC 1:5 dS/m	Cl mg/kg	CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
										Ca	Mg	Na	K	
0-10	26	56	10	8	7.7	0	0.24	60	10	2.0	0.38	0.05	1.0	0.5
22-36	15	32	8	42	8.3	0	0.14	152	27	11.6	4.2	2.3	0.81	8.5
36-50	14	35	5	17	9.2	25	0.63	868	12	12.1	3.1	1.5	0.42	12.5
65-85	27	46	2	9	9.4	10	0.50	230	5	3.8	1.7	0.88	0.30	16.0

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.