ACIDIC LOAMY SAND OVER BROWN CLAY ON ROCK

General Description: *Sandy surface soil with variable quartz and sandstone gravel, overlying a brown, yellow and red sandy clay subsoil grading to weathering micaceous sandstone within one metre.*

Landform: Slopes of undulating to rolling low hills of the north-eastern Mount Lofty Ranges

Substrate: Weathering micaceous sandstone of the Backstairs Passage Formation

Vegetation: Woodland of blue gum and sheoak

Type Site:

Site No.:	CH028	1:50,000 mapsheet:	6728-3 (Tepko)
Hundred:	Tungkillo	Easting:	321850
Section:	229	Northing:	6138100
Sampling date:	12/01/93	Annual rainfall:	650 mm average

Upper slope of undulating low hills, 8% slope. Firm surface with minor outcrop of metasandstone.

Soil Description:

Depth (cm)	*Description*
0-10	Dark greyish brown loamy sand. Clear to:
10-30	Very pale brown massive loamy sand with 10% quartz and metasandstone gravel and stones. Abrupt to:
30-50	Dark brown, yellowish brown and dark red fine sandy light clay with strong coarse prismatic structure and 10% quartz gravel. Gradual to:
50-70	Dark brown, yellowish brown and dark red sandy light clay with weak coarse prismatic structure and 50% weathering rock fragments. Gradual to:
70-140	Weathering micaceous sandstone with 20% sandy clay in fissures.

Classification: Bleached-Sodic, Eutrophic, Brown Chromosol; thick, slightly gravelly, sandy / clayey, moderate

Summary of Properties

Drainage: Moderately well drained. The soil is unlikely to remain wet for more than a week or so.

Fertility: Moderate natural fertility, as indicated by the relatively low cation exchange capacity in the upper subsoil. Exchangeable magnesium and potassium values are low, and the calcium / magnesium ratio is too high. Phosphorus and copper are low.

pH: Slightly acidic at surface, neutral with depth, but acidic in weathering rock.

Rooting depth: 120 cm in pit, but few roots below 70 cm.

Barriers to root growth:

Physical: High clay strength, and poor structure of surface soil may restrict root development.

Chemical: Sub-optimal subsoil fertility is the main constraint.

Waterholding capacity: 90 mm in rootzone (moderate).

Seedling emergence: Good, except where water repellent, or where surface structure has deteriorated due to organic matter decline.

Workability: Good, except where rock outcrop and surface stone are significant. These soils are commonly associated with rock and stone.

Erosion Potential:

Water: Moderate to moderately high.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H_2O	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 (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	6.5	6.2	0	0.09	0.37	2.7	16	200	-	1.3	0.75	139	42	7.1	11.3	11.6	1.67	0.18	0.37	1.6
0-10	6.3	5.9	0	0.05	0.25	2.1	19	130	-	0.8	-	-	-	-	7.9	9.17	1.10	0.13	0.14	1.6
10-30	6.4	6.2	0	0.03	0.21	0.26	10	130	-	0.4	-	-	-	-	2.1	2.17	0.51	0.15	0.13	na
30-50	7.3	6.9	0	0.11	0.33	0.22	3	290	-	1.2	-	-	-	-	7.6	4.79	3.70	0.42	0.53	5.5
50-70	7.2	6.5	0	0.10	0.41	0.17	3	280	-	1.5	-	-	-	-	7.7	2.67	4.83	0.73	0.43	9.5
70-140	5.7	4.7	0	0.09	0.88	0.05	3	120	-	0.6	-	-	-	-	2.6	0.50	1.87	0.59	0.04	n.s.

Note: Paddock sample bulked from 20 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.

Further information: DEWNR Soil and Land Program