

## ACIDIC SANDY LOAM OVER BROWN CLAY ON ROCK

**General Description:** *Sandy to loamy surface soil with variable gravel, sharply overlying a grey brown, red and yellow micaceous clay subsoil, grading to weathering schist or mica rich sandstone*

**Landform:** Slopes of rocky, undulating to rolling rises and low hills of the eastern Mount Lofty Ranges

**Substrate:** Sandy schists or metamorphosed sandstones of the Backstairs Passage Formation

**Vegetation:** Red gum woodland



**Type Site:** Site No.: CH040

1:50,000 sheet:	6628-2 (Onkaparinga)	Hundred:	Onkaparinga
Annual rainfall:	775 mm	Sampling date:	18/12/92
Landform:	Upper slope of undulating rise, 6% slope		
Surface:	Soft with minor surface sandstone		

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-20	Brownish grey soft massive sandy loam with 10% quartz gravel. Abrupt to:
20-25	Yellowish brown and yellowish red soft massive fine sandy loam, bleached when dry. Clear to:
25-60	Brown medium clay with strong coarse angular blocky structure. Diffuse to:
60-100	Brownish yellow, greyish brown and reddish brown sandy medium clay with strong coarse angular blocky structure, and 20% quartz and sandstone fragments. Gradual to:
100-120	Soft weathering micaceous sandstone.



**Classification:** Bleached-Sodic, Eutrophic, Brown Kurosol; medium, slightly gravelly, loamy / clayey, deep

## Summary of Properties

<b>Drainage</b>	Moderately well to imperfectly drained, due to low permeability dispersive clay subsoil. Soil may remain wet for a week to several weeks.
<b>Fertility</b>	Natural fertility is moderate, but low clay content surface soil is marginally deficient in calcium, magnesium and potassium, as indicated by the exchangeable cation data. Magnesium is particularly low. Boron, sulphur, copper and possibly manganese are also deficient. Low pH will tend to weaken the capacity of the soil to retain nutrients.
<b>pH</b>	Strongly acidic throughout. Dolomitic lime is needed to correct the pH.
<b>Rooting depth</b>	100 cm in pit.
<b>Barriers to root growth</b>	
<b>Physical:</b>	Waterlogging and high clay strength restrict root development.
<b>Chemical:</b>	High acidity reduces nutrient retention capacity and increases susceptibility to aluminium toxicity, which is moderate at pit site.
<b>Water holding capacity</b>	130 mm in root zone, but part of this is effectively unavailable due to low root density.
<b>Seedling emergence</b>	Good.
<b>Workability</b>	Good, except where rockiness, commonly associated with this soil class, is excessive.
<b>Erosion Potential</b>	
<b>Water:</b>	Moderate, due to 6% slope and low coherence of topsoil.
<b>Wind:</b>	Moderately low to low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CaCO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	Ext Al mg/kg
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
Paddock	4.7	4.3	0	0.06	0.36	1.7	57	150	7.4	0.3	0.87	499	14.6	8.99	5.6	2.69	0.60	0.14	0.28	2.5	6
0-20	4.4	4.1	0	0.07	0.37	1.6	36	94	6.8	0.2	-	-	-	-	6.6	2.76	0.86	0.15	0.24	2.3	6
20-25	4.7	4.3	0	0.06	0.42	0.29	7	78	5.0	0.2	-	-	-	-	3.2	1.59	0.41	0.16	0.11	na	2
25-60	5.1	4.4	0	0.09	0.30	0.41	3	210	3.8	0.5	-	-	-	-	18.0	6.57	8.66	0.78	0.50	4.3	<1
60-100	5.4	4.2	0	0.05	0.21	0.18	4	280	4.3	0.3	-	-	-	-	19.8	3.95	12.2	1.68	0.53	8.5	2
100-120	5.6	4.3	0	0.05	0.24	0.06	4	210	4.5	0.2	-	-	-	-	14.8	1.87	9.51	2.22	0.39	15.0	3

**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.