SANDY LOAM OVER BROWN SANDY CLAY

General Description: *Thick loamy sand to sandy loam, bleached and gravelly at base, over a brown, yellow and red mottled sandy clay loam to sandy clay.*
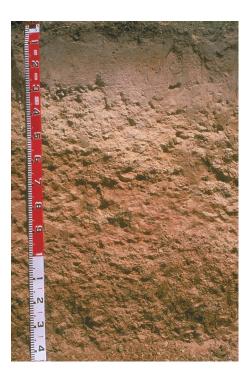
Landform: Lower slopes and valley flats

Substrate: Medium to coarse textured (and often gravelly) sediments derived from rocks of the Kanmantoo Group

Vegetation: Eucalyptus leucoxylon / E. camaldulensis woodland

Type Site:

Site No.:	CH007	1:50,000 mapsheet:	6728-3 (Tepko)
Hundred:	Tungkillo	Easting:	319500
Section:	130	Northing:	6137650
Sampling date:	28/10/91	Annual Rainfall:	680 mm average

Valley flat between rolling low hills, slope 3%. Firm surface, no stones.

Soil Description:

Depth (cm)	Description
0-8	Dark brown moderately granular sandy loam. Abrupt to:
8-16	Brown weakly granular light sandy loam. Clear to:
16-26	White, with light brown blotches, soft single grain loamy sand. Abrupt to:
26-50	Pale brown and yellowish brown soft single grain loamy sand. Clear to:
50-70	Orange, brown and red sandy clay with weak very coarse prismatic structure. Clear to:
70-90	Orange, red and light brown sandy clay loam with weak very coarse prismatic structure. Clear to:
90-110	Orange, brown and red sandy clay with moderate subangular blocky structure. Abrupt to:
110-140	Yellowish brown, red and grey heavy clay with strong coarse blocky structure.

Classification: Mesotrophic, Mottled-Mesonatric, Brown Sodosol; thick, non-gravelly, loamy/clayey, deep

Summary of Properties

Note:	***Sodicity and salinity are higher in this soil class in the eastern hills than elsewhere in the Mt Lofty Ranges***
Drainage:	Imperfectly to moderately well drained, due to restrictive subsoil and position in the landscape. Soil may remain wet for a week to several weeks.
Fertility:	Low inherent fertility as indicated by the low CEC values. Multiple nutrient deficiencies can be expected because of this and substantial leaching. Phosphorus levels are very low. All major cations (calcium, magnesium and potassium) are deficient. Copper is also low.
pH:	Acidic throughout. Lime is required to correct the problem.
Rooting depth:	110 cm, but root density is low beneath the immediate surface layers.
Barriers to root growth:	
Physical:	Waterlogging on top of the subsoil retards root growth and as the sandy material between 16 and 50 cm dries rapidly, root extension is restricted in a quick finish.
Chemical:	Low fertility, exacerbated by low pH.
Waterholding capacity:	120 mm in rootzone, but only a fraction is effectively available to plants because of low root density.
Seedling emergence:	Good.
Workability:	Good, provided that organic matter levels are maintained.
Erosion Potential:	
Water:	Moderately low, although unchecked run-on water may cause damage.
Wind:	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	Cu	Fe	Mn	Zn	CEC cmol (+)/kg	Ca	Mg	Na	K	ESP
0-8	5.4	4.9	0	0.29	2.5	1.9	<4	100	-	0.8	0.2	183	6.3	0.7	5.0	2.5	1.3	0.75	0.17	15
8-16	5.6	4.9	0	0.09	1.1	0.6	<4	78	-	0.3	0.2	122	1.4	0.3	3.1	1.1	0.7	0.32	0.10	ns
16-26	5.8	5.1	0	0.05	0.5	0.2	<4	70	-	0.3	0.1	32	0.6	0.1	1.6	0.4	0.4	0.25	0.07	ns
26-50	6.2	5.8	0	0.06	0.7	0.1	<4	79	-	0.4	0.1	19	2.0	0.1	1.5	0.4	0.3	0.35	0.13	ns
50-70	6.2	6.0	0	0.23	3.3	0.1	<4	95	-	1.1	0.2	4.8	0.3	0.1	4.6	1.3	2.0	1.14	0.16	25
70-90	6.0	5.9	0	0.35	4.2	0.1	<4	73	-	0.8	0.2	3.4	0.1	0.1	4.0	1.2	2.2	1.03	0.10	26
90-110	5.8	5.6	0	0.35	3.7	0.1	<4	63	-	1.0	0.2	8.5	0.3	0.1	4.1	1.4	2.7	1.51	0.11	37
110-140	4.7	4.6	0	0.93	6.6	0.2	<4	75	-	3.2	0.1	3.1	0.0	0.0	15.1	2.1	9.6	3.20	0.20	21

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.

Further information: DEWNR Soil and Land Program

Government of South Australia
Department of Environment,
Water and Natural Resources