GRADATIONAL RED VOLCANIC SANDY CLAY LOAM

General Description: *Well structured friable black sandy clay loam grading to dark reddish sandy light clay over fragmented volcanic materials, calcarenite and lacustrine sediments. Igneous sand grains occur throughout the profile.*

Landform: Gently undulating rises and broad swales, near Glencoe.

Substrate: Pyroclastic calcarenite breccia

Vegetation: -

Type Site: Site No.: SE085

1:50,000 sheet:	7022-4 (Kalangadoo)	Hundred:	Young
Annual rainfall:	825 mm	Sampling date:	29/09/04
Landform:	Crest of low rise		
Surface:	Firm with no stones		

Soil Description:

Depth (cm)	*Description*
0-60	Black sandy clay loam with strong coarse to medium polyhedral structure. Occasional smooth vitrified pink feldspar, coarse sand grain. Abundant roots. Diffuse Change to:
60-100	Dark reddish brown sandy clay loam with moderate medium polyhedral structure. Occasional smooth vitrified pink feldspar, coarse sand grain. Many roots. Sharp change to:
100-130	Dark reddish brown weakly mottled reddish brown sandy light clay with moderate medium polyhedral structure. Many roots. Sharp change to:
130-210	Calcarenite fragments and boulders. Sharp change to:
210-250	Greenish grey laminated clay with dark coarse sand grains. Calcarenite breccia common.

Classification: Melanic, Eutrophic, Red Dermosol; thick, non-gravelly, clay loamy / clayey, deep.

Summary of Properties

Drainage: Well drained, although weak mottling in the lower B horizon (100-130 cm) indicates slightly impeded drainage in that zone. Profile is unlikely to remain wet for more than a few days following heavy or prolonged rainfall.

Fertility: Inherent fertility is high, as indicated by the total cations. Concentrations of most tested elements are low (roadside sample). These soils generally have higher natural phosphate levels than most other soils in South Australia. Potassium concentrations are unusually low for a red clayey soil.

pH: Moderately alkaline throughout the profile.

Rooting depth: 130 cm.

Barriers to root growth:

Physical: Weakly cemented calcarenite at 130 cm will discourage some roots.

Chemical: Moderate alkalinity may affect root growth in some species, as will the calcareous material below 130 cm.

Water holding capacity: Approximately 200 mm

Seedling emergence: Satisfactory.

Workability: Easily workable and accessible throughout the year. A good tilth can be produced under a wide range of soil moisture conditions.

Erosion Potential

Water: Low

Wind: Low

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_3 %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO_4-S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-60	7.9	7.2	0	0.11	0.34	3.4	11	68	10	5.2	1.3	1.8	104	0.9	132	31.5	25.8	5.0	0.5	0.2	1.7
60-100	7.6	6.6	0	0.05	0.18	1.6	12	55	6	3.4	0.9	0.8	58	0.3	26.9	18.3	14.0	3.7	0.5	0.1	2.7
100-130	7.5	6.7	0	0.06	0.14	1.3	15	83	4	3.5	0.7	0.8	54	0.3	105	19.2	15.2	3.5	0.3	0.2	1.7
130-210	8.2	7.5	40	0.11	0.35	1.0	9	85	9	4.1	0.3	0.6	15	0.5	6.7	22.0	20.4	1.2	0.2	0.2	0.8
210-250	8.2	7.5	26	0.13	0.24	1.3	8	103	11	4.8	0.3	0.5	20	0.6	9.1	27.1	25.1	1.5	0.3	0.3	1.0

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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 (in this case estimated by the sum of cations).