DEEP GRADATIONAL CLAY LOAM

General Description: *Gravelly clay loam grading to a reddish clay over fine grained and gravelly sediments*

Landform: Pediments and outwash fans adjacent to western escarpment of Mt. Lofty Range

Substrate: Clayey sediments with variable gravel and stone.

Vegetation: Eucalyptus camaldulensis woodland

Type Site: Site No.: CH117

1:50,000 sheet:	6628-3 (Adelaide)	Hundred:	Adelaide
Annual rainfall:	625 mm	Sampling date:	27/10/97
Landform:	Midslope of pediment, 6% slope		
Surface:	Hard setting with 2-10% shale stones (20-60 mm)		

Soil Description:

Depth (cm)	*Description*
0-11	Very dark brown very hard cloddy clay loam with 10-20% shale quartz gravel (6-20 mm). Clear to:
11-35	Dark reddish brown very hard light clay with moderate coarse prismatic structure and 2-10% shale and quartz gravel (6-20 mm). Clear to:
35-60	Dark reddish brown very hard clay loam with weak polyhedral structure and 2-10% shale and quartz gravel (6-20 mm). Clear to:
60-75	Brown firm light clay with weak polyhedral structure and more than 50% shale and quartz gravel (6-60 mm). Gradual to:
75-125	Yellowish red, strong brown and dark yellowish brown mottled very hard medium clay with weak coarse polyhedral structure and 20-50% shale gravel (20-60 mm) and partially weathered rock fragments. Gradual to:
125-140	Olive brown and yellowish red mottled friable (moist) medium clay with moderate lenticular structure.

Classification: Sodic, Eutrophic, Red Dermosol; thick, gravelly, clay loamy / clayey, deep

Summary of Properties

Drainage: Moderately well drained. The soil in unlikely to remain wet form more than a week following heavy or prolonged rainfall.

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data. Concentrations of all measured elements are satisfactory – note high trace element levels, which are residues of pesticides spayed on to vine canopies.

pH: Slightly acidic at the surface, alkaline with depth.

Rooting depth: Most roots are in upper 75 cm, with a few below.

Barriers to root growth:

Physical: The hard subsoil restricts root growth to a minor extent.

Chemical: There are no apparent chemical barriers.

Water holding capacity: Approximately 95 mm total available water, and approximately 40 mm readily available water in the upper 75 cm.

Seedling emergence: Fair, due to hard setting surface.

Workability: Fair – soil tends to shatter if worked too dry and puddle if worked too wet.

Erosion Potential

Water: Moderately low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	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 (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-11	6.3	5.4	0	0.063	-	2.39	83	669	4.0	1.5	28.0	59	64.6	23.7	20.7	12.3	3.7	0.21	1.1	1.0
11-35	6.8	6.2	0	0.144	-	1.53	18	283	13.3	1.1	46.9	31	43.7	7.25	19.9	11.2	6.6	0.31	0.45	1.6
35-60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60-75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75-125	7.9	6.8	<0.1	0.093	-	0.20	11	169	9.0	0.6	0.90	11	5.60	0.41	13.4	6.5	4.3	0.65	0.28	4.9
125-140	8.4	7.0	<0.1	0.101	-	0.17	4	266	18.9	0.8	0.61	11	3.69	0.26	28.7	12.4	10.5	2.2	0.43	7.7

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.