

COARSE SANDY LOAM OVER BROWN & RED CLAY ON ROCK

General Description: *Medium to thick gritty coarse sandy loam with a bleached subsurface layer over a brown and red mottled gravelly clay grading to coarse grained metamorphic rock*

Landform: Undulating to rolling low hills and hills.

Substrate: Coarse grained metamorphic rocks including gneiss, schist and migmatite.

Vegetation:



Type Site: Site No.: CH157
 1:50,000 sheet: 6728-4 (Angaston) Hundred: Moorooroo
 Annual rainfall: 750 mm Sampling date: 13/11/06
 Landform: Crest of undulating low hills, 8% slope.
 Surface: Firm with 2-10% quartzite stones to 20 mm.

Soil Description:

Depth (cm)	Description
0-15	Very dark greyish brown friable coarse sandy loam with weak granular structure and 2-10% quartzite gravel. Clear to:
15-30	Light yellowish brown (bleached dry) friable massive light coarse sandy loam with more than 50% quartzite and gneiss gravel. Clear to:
30-45	Strong brown, yellowish red and red firm sandy medium clay with strong fine polyhedral structure and 10-20% gneiss fragments. Gradual to:
45-65	Yellowish brown, greyish brown and red firm medium heavy clay with strong fine polyhedral structure and 20-50% gneiss fragments. Diffuse to:
65-105	Greyish brown firm coarse sandy clay loam with weak polyhedral structure forming in weathering gneiss. Clear to:
105-110	Yellowish brown, white and dark red weathering gneiss.



Classification: Bleached, Eutrophic, Brown Chromosol; thick, slightly gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Moderately well drained. The subsoil clay may perch water for up to a week (saturating the 15-30 cm layer), following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. Retention capacity is significantly higher in the subsoil. Phosphorus levels are marginal, but other tested nutrient elements are adequately supplied at the sampling site.

pH: Acidic at the surface, strongly acidic with depth.

Rooting depth: 105 cm in sampling pit, but few roots below 65 cm.

Barriers to root growth:

Physical: Depth to weathering rock is the main physical determinant of root zone depth.

Chemical: High acidity in the deep subsoil (below 65 cm) restricts root growth.

Water holding capacity: (Estimates for potential root zone of grape vines)

Total available: 75 mm

Readily available: 40 mm

Seedling emergence: Satisfactory.

Workability: Firm gritty sandy loam surface is relatively easily worked, but abrasive.

Erosion Potential

Water: Moderately low.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl 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	React Fe mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP	
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
0-15	6.1	5.2	0	0.062	0.62	2.02	30	161	28	5.7	0.6	1099	9.03	319	26.0	5.34	7.1	5.26	1.37	0.12	0.36	1.7	
15-30	6.3	5.3	0	0.022	0.16	0.26	7	64	8	5.2	0.5	509	0.51	87	7.72	0.15	4.2	2.48	1.44	0.13	0.16	3.1	
30-45	5.8	4.7	0	0.048	0.21	0.39	2	111	19	30.6	0.8	886	0.19	62	2.56	0.17	17.0	5.76	10.5	0.41	0.30	2.4	
45-65	5.6	4.7	0	0.052	0.23	0.27	2	98	23	40.9	0.7	984	0.21	69	2.71	0.07	15.8	4.32	10.8	0.39	0.26	2.5	
65-105	5.2	4.0	0	0.040	0.34	0.18	4	72	24	19.2	0.3	634	0.77	77	4.91	0.22	6.3	1.75	4.11	0.22	0.19	3.5	
105-110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.