LOAM OVER RED CLAY ON WEATHERING ROCK

General Description: *Red brown loam over a red well structured red clay forming in weathering fine grained basement rock*

Landform: Slopes of undulating rises and low hills.

Substrate: Blue siltstone of the Tindelpina Shale Formation.

Vegetation:

Type Site: Site No.: CL043

1:50,000 sheet:	6629-2 (Kapunda)	Hundred:	Nuriootpa
Annual rainfall:	540 mm	Sampling date:	29/11/04
Landform:	Upper slope of undulating low hills, 5% slope		
Surface:	Firm with no stones		

Soil Description:

Depth (cm)	*Description*
0-14	Dark reddish brown friable loam with moderate granular structure. Abrupt to:
14-40	Dark reddish brown firm medium clay with strong medium polyhedral structure. Clear to:
40-65	Red firm moderately calcareous light clay with moderate polyhedral structure, 10-20% soft carbonate segregations and 20-50% siltstone fragments. Diffuse to:
65-140	Weathering siltstone with yellowish red firm weakly structured highly calcareous clay loam between rock fragments.

Classification: Sodic, Calcic, Red Chromosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Well drained. The soil is unlikely to remain wet for more than a day or two following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately high, as indicated by the exchangeable cation data.

pH: Alkaline at the surface (due to lime spreading), alkaline with depth. Surface would be acidic in natural condition.

Rooting depth: 120 cm in pit.

Barriers to root growth:

Physical: The underlying basement rock is the only significant limitation. Depth and hardness vary considerably. Vertical bedding in rock, as at this site, is more favourable than horizontal bedding.

Chemical: Marginal salinity from 40 cm restricts root growth in sensitive species.

Water holding capacity: (Estimates for potential root zone of irrigated crops)

Total available: 120 mm
Readily available: 50 mm

Seedling emergence: Good to fair, depending on condition of surface soil. Surface condition very favourable at this site.

Workability: Satisfactory, provided that friable surface condition is maintained with adequate organic matter and/or gypsum.

Erosion Potential

Water: Moderate due to slope.

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	Mn	Zn		Ca	Mg	Na	K	
0-14	7.5	7.1	0.9	0.135	1.08	2.36	39	445	26	35.2	1.2	4.84	128	21.3	17.1	13.9	11.3	1.28	0.15	1.14	1.1
14-40	6.4	5.7	0	0.130	1.28	0.82	2	159	9	128	1.1	2.26	39	16.6	1.43	15.9	11.9	3.33	0.32	0.42	2.0
40-65	8.1	7.6	3.4	0.305	2.71	0.92	3	124	110	224	0.8	1.86	12	8.05	0.52	26.2	21.4	3.52	0.98	0.30	3.7
65-140	8.4	7.9	3.7	0.502	4.21	0.54	2	91	494	76.5	0.7	1.48	12	7.23	0.60	21.6	15.6	3.77	2.01	0.24	9.3

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.