SANDY CLAY LOAM OVER RED CLAY

General Description: *Sandy loam to sandy clay loam over a red well structured clay, calcareous with depth*

Landform: Lower slopes and fans in undulating rises and low hills

Substrate: Fine to medium grained outwash sediment (Pooraka Formation), mantled by secondary carbonate

Vegetation:

Type Site: Site No.: EE213

1:50,000 sheet:	6230-4 (Mangalo)	Hundred:	Hawker
Annual rainfall:	375 mm	Sampling date:	17/09/01
Landform:	Lower slope of undulating low hills, 2% slope.		
Surface:	Hard setting with no stones.		

Soil Description:

Depth (cm)	*Description*
0-10	Dark reddish brown firm sandy clay loam with weak fine granular structure. Clear to:
10-23	Dark reddish brown firm medium clay with strong medium polyhedral structure. Clear to:
23-40	Yellowish red firm highly calcareous light medium clay with moderate polyhedral structure. Gradual to:
40-80	Yellowish red firm very highly calcareous massive sandy light clay with 20-50% fine carbonate segregations. Diffuse to:
80-130	Yellowish red hard very highly calcareous massive sandy light clay with 20-50% fine carbonate segregations.

Classification: Hypercalcic, Mesonatric, Red Sodosol; medium, non-gravelly, clay loamy / clayey, deep

Summary of Properties

Drainage: Moderately well drained. Soil is unlikely to remain wet for more than a week following heavy or prolonged rainfall.

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data. At the pit site, sulphur concentrations are low at the surface, although subsoil levels will compensate once plants are established. Organic carbon and nitrate levels are also low for this soil type. Concentrations of other tested elements are satisfactory.

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

Rooting depth: 85 cm in pit, but few roots below 60 cm.

Barriers to root growth:

Physical: There are no apparent barriers to root growth. Although the subsoil is sodic, it is relatively friable and should not pose serious problems to root growth.

Chemical: High pH / sodicity from 80 cm limits deeper root growth. Boron and salt levels are also moderately high from this depth.

Water holding capacity: Approximately 90 mm in the potential root zone.

Seedling emergence: Fair due to the tendency of the surface to seal over and set hard.

Workability: Fair. The surface tends to puddle if worked too wet, and shatter if worked too dry.

Erosion Potential

Water: Moderately low. Run on water from upslope may cause rilling of unprotected surfaces.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC 1:5 dS/m	Org.C %	NO_3 mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO_4 mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum of cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-10	7.8	7.3	nd	0.10	0.89	2	52	409	2.2	1.3	0.39	6.5	0.75	7.64	10.5	6.71	2.15	0.55	1.07	5.2
10-23	8.8	7.8	nd	0.24	0.55	2	9	356	6.0	2.1	0.69	4.3	0.67	2.96	20.2	9.41	6.75	3.16	0.88	15.6
23-40	9.3	8.5	nd	0.62	0.57	2	5	326	27.2	4.1	1.68	5.1	0.50	1.55	27.5	11.5	9.44	5.70	0.85	20.7
40-80	9.7	8.6	nd	0.60	0.26	1	4	270	68.9	6.8	1.17	3.5	0.37	1.16	20.7	8.20	6.53	5.30	0.67	25.6
80-130	9.9	8.7	nd	0.77	0.11	2	3	377	82.1	14.5	0.53	3.4	0.29	1.16	20.6	7.01	6.15	6.44	0.95	31.3

Note: Sum of cations in neutral to alkaline soils is an approximation of 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 sum of cations.