

SANDY LOAM OVER POORLY STRUCTURED RED CLAY

General Description: *Reddish brown hard setting loamy sand to clay loam overlying a dark reddish brown well structured clay, calcareous with depth*

Landform: Old alluvial flats of the Angas Bremer flood plain

Substrate: Medium to coarse grained unconsolidated river alluvium

Vegetation: Blue gum / peppermint gum woodland

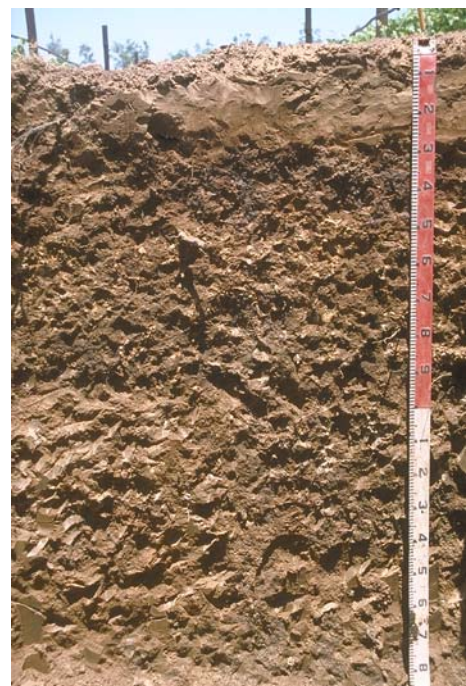


Type Site: Site No.: CH050

1:50,000 sheet:	6727-3 (Alexandrina)	Hundred:	Bremer
Annual rainfall:	390 mm	Sampling date:	18/08/93
Landform:	Alluvial flat, 0% slope, elevation 15m		
Surface:	Hard setting with no stones		

Soil Description:

Depth (cm)	Description
0-10	Reddish brown massive hard setting light sandy loam. Abrupt to:
10-20	Reddish brown massive hard sandy loam. Abrupt to:
20-30	Reddish brown massive hard light sandy loam. Sharp to:
30-50	Red and dark reddish brown firm medium clay with strong coarse prismatic structure. Clear to:
50-85	Dark reddish brown and orange light medium clay with polyhedral structure and 2-10% soft and nodular carbonate. Gradual to:
85-130	Dark reddish brown, yellowish red and orange light clay with moderate blocky structure and minor carbonate nodules. Gradual to:
130-180	Yellowish brown, orange and pale brown soft massive clayey sand.



Classification: Calcic, Subnatric, Red Sodosol; medium, non-gravelly, loamy / clayey, moderate

Summary of Properties

Drainage The soil is moderately well drained, and is unlikely to remain wet for more than a week. A perched water table on top of the clay subsoil may cause minor waterlogging.

Fertility The inherent fertility of the soil is moderate, as indicated by the exchangeable cation data (high values in the clay subsoil, but low in the surface due to low clay and organic matter contents). Phosphorus levels are low at the type site.

pH Neutral at the surface, alkaline with depth.

Rooting depth There are vine roots to 180 cm, but few below 85 cm, and a concentration in the 30-50 cm layer.

Barriers to root growth

Physical: The firm subsoil clay (sodic) may restrict the penetration of some roots.

Chemical: There are no chemical barriers to root growth, but sodium build up under irrigation can be expected over time.

Water holding capacity 150 mm in total root zone although not all of this is available due to poor root distribution patterns. Readily available water capacity for irrigated crops is about 50 mm in the main rootzone of 85 cm.

Seedling emergence Moderate, due to the tendency of these soils to set hard and seal, particularly where the organic matter content is low.

Workability Without high organic matter levels and/or gypsum applications, these soils are difficult to work as they rapidly change from being too wet to too dry.

Erosion Potential

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CaCO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S 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	
Row	6.6	6.2	0	0.07	0.42	0.9	11	353	-	1.4	4.9	49	17.7	5.6	6.4	4.23	1.78	0.45	0.64	7.0
0-20	6.9	6.4	0	0.09	0.71	0.7	5	357	-	1.2	3.4	36	18.1	3.9	5.1	3.81	1.72	0.48	0.63	9.4
20-30	7.2	6.8	0	0.08	0.65	0.3	<4	292	-	1.0	0.9	9	10.2	0.4	4.5	3.20	1.70	0.45	0.55	10.0
30-50	7.3	6.6	0	0.13	0.71	0.5	<4	472	-	3.5	2.3	10	7.0	0.2	18.7	8.19	5.68	1.37	1.42	7.3
50-85	8.5	8.1	4.2	0.20	0.75	0.2	<4	319	-	2.5	1.3	6	1.9	0.1	10.3	5.80	3.51	0.98	0.78	9.5
85-130	8.4	8.0	0.9	0.25	0.83	0.4	<4	546	-	3.4	1.8	11	2.6	0.1	14.7	8.13	5.84	1.55	1.27	10.5
130-180	8.1	7.3	0	0.04	0.31	<0.1	<4	166	-	1.0	0.2	4	1.8	0.1	3.2	1.87	1.36	0.39	0.31	12.2

Note: Row sample bulked from 20 cores (0-10 cm) taken from vine rows near the pit.

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.