

LIGHT SANDY LOAM OVER RED CLAY ON SANDY ALLUVIUM

General Description: *Thick massive light sandy loam to loamy sand over a moderately well structured red clay, calcareous with depth, grading to coarse textured alluvium*

Landform: Alluvial plains of the Bremer River.

Substrate: Layered sandy to clayey alluvium.

Vegetation:



Type Site: Site No.: CH161B
 1:50,000 sheet: 6727-3 (Alexandrina) Hundred: Strathalbyn
 Annual rainfall: 400 mm Sampling date: 28/11/06
 Landform: Alluvial plain, 0% slope.
 Surface: Firm with no stones.

Soil Description:

Depth (cm)	Description
0-15	Reddish brown friable massive light sandy loam. Gradual to:
15-30	Yellowish red friable massive light sandy loam. Gradual to:
30-45	Yellowish red friable massive loamy sand. Abrupt to:
45-70	Dark reddish brown firm medium clay with strong medium angular blocky structure. Gradual to:
70-90	Brown firm highly calcareous light clay with moderate subangular blocky structure, and 10-20% fine and 10-20% nodular carbonate segregations. Gradual to:
90-125	Yellowish red hard massive sandy loam. Gradual to:
125-150	Dark reddish brown and strong brown very hard light clay with strong angular blocky structure and 10-20% nodular carbonate segregations.



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

Summary of Properties

- Drainage:** Moderately well drained. The clayey subsoil may perch water for up to a week following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is moderately low to low, as indicated by the exchangeable cation data. Low clay and organic matter contents of topsoil restrict the level of nutrient retention. Phosphorus and zinc levels are marginal at the sampling site, but other tested elements are in adequate supply.
- pH:** Neutral to slightly alkaline at the surface, alkaline with depth.
- Rooting depth:** 150 cm in sampling pit, but few roots below 125 cm.
- Barriers to root growth:**
- Physical:** The clayey subsoil restricts root density to some extent, but does not prevent root growth. Elevated sodicity levels in the topsoil and probably upper subsoil are due to the effects of irrigation water. Maintenance of electrolyte concentration is needed to prevent dispersion in these materials.
- Chemical:** There are no severe restrictions, however the combination of elevated pH, sodicity, salinity and boron concentration limits root vigour.

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

Total available: 150 mm
Readily available: 70 mm

Seedling emergence: Satisfactory.

Workability: The soft sandy surface is easily worked.

Erosion Potential

Water: Low.

Wind: Moderately 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	7.9	7.2	0	0.196	1.54	0.70	21	189	150	18.7	1.1	427	4.15	88	83.7	2.67	6.5	3.63	1.78	0.74	0.37	11.3
15-30	8.4	7.6	0	0.109	0.73	0.23	9	129	58	7.9	0.7	411	1.36	37	57.8	0.52	4.7	2.55	1.32	0.59	0.25	12.5
30-45	8.5	7.6	0	0.119	1.31	0.15	5	158	70	11.0	1.2	430	1.94	21	42.1	0.43	5.7	2.84	1.74	0.81	0.29	14.3
45-70	8.7	7.7	0	0.273	1.71	0.63	2	248	132	21.9	4.0	651	4.76	33	99.2	0.25	20.9	9.98	7.71	2.62	0.63	12.5
70-90	9.1	8.0	5.7	0.371	nd	0.33	2	267	217	46.0	3.7	767	2.60	15	9.59	0.29	21.4	12.1	6.09	2.60	0.63	12.1
90-125	9.0	8.5	0.9	0.229	2.38	0.15	2	173	103	29.5	1.8	514	1.52	23	51.6	0.29	13.9	7.48	4.10	1.88	0.41	13.6
125-150	9.1	8.2	1.9	0.365	2.39	0.23	2	250	164	64.8	3.3	642	1.68	25	47.4	0.96	17.4	9.04	5.37	2.35	0.61	13.5

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.