

# GRADATIONAL SANDY CLAY LOAM

**General Description:** *Reddish sandy loam to sandy clay loam grading to a red clay, calcareous with depth over medium to fine grained alluvium*

**Landform:** Very gently undulating dune field superimposed on alluvial plain

**Substrate:** Fine grained alluvium, near surface in dunefield swales

**Vegetation:** Mallee



**Type Site:** Site No.: CH142

1:50,000 sheet: 6627-3 (Alexandrina) Hundred: Strathalbyn

Annual rainfall: 400 mm Sampling date: 18/10/05

Landform: Swale of very gently undulating dunefield, 1% slope

Surface: Soft with no stones

## Soil Description:

Depth (cm)	Description
0-10	Dark reddish brown friable massive slightly calcareous light sandy clay loam. Clear to:
10-20	Dark reddish brown and brown friable fine sandy light clay with weak coarse subangular blocky structure. Abrupt to:
20-45	Dark reddish brown and strong brown friable medium clay with moderate polyhedral structure. Clear to:
45-75	Dark reddish brown and brown friable massive highly calcareous fine sandy clay loam with 20-50% carbonate nodules (20-60 mm) and 20-50% soft carbonate. Clear to:
75-100	Dark reddish brown and dark brown firm highly calcareous light clay with moderate polyhedral structure and 10-20% soft carbonate. Gradual to:
100-160	Dark reddish brown and dark brown firm light medium clay with smooth ped angular blocky structure and minor soft carbonate.



**Classification:** Sodic, Supracalcic, Red Dermosol; medium, non-gravelly, loamy / clayey, deep

## Summary of Properties

- Drainage:** Moderately well drained. The subsoil may remain wet for up to a week following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is moderate, as indicated by the exchangeable cation data. Test data indicate that concentrations of all measured elements are adequate. High surface pH (possibly due to pre-plant ripping and movement of subsoil to surface) may cause some reduction in trace element availability.
- pH:** Alkaline throughout.
- Rooting depth:** Strong root growth to 45 cm, diminishing to 100 cm, with very few roots below 100 cm in the sampling pit.
- Barriers to root growth:**
- Physical:** There are no significant physical barriers.
  - Chemical:** Elevated boron concentrations from 45 cm and sodicity from 75 cm restrict deep subsoil root growth.
- Water holding capacity:** (Estimates for potential root zone of irrigated crops – approx. 200 cm in this profile)
- Total available: 115 mm
  - Readily available: 60 mm
- Seedling emergence:** Satisfactory, although surface can seal over if excessively cultivated.
- Workability:** Some tendency to shatter if worked too dry and puddle if worked too wet.
- Erosion Potential**
- Water:** Low.
  - Wind:** Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO <sub>4</sub> -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	
0-10	8.3	7.6	0.6	0.16	1.30	1.21	89	880	36	28.6	2.0	4.42	71	75.3	11.8	21.6	11.5	6.94	0.67	2.47	3.1
10-20	8.5	7.7	0.6	0.15	1.02	0.39	7	550	37	27.2	1.4	3.43	59	74.7	1.59	21.9	11.5	8.00	1.02	1.40	4.7
20-45	8.6	7.6	0.3	0.10	0.65	0.30	2	360	22	10.3	2.8	2.15	25	35.7	0.86	21.2	9.17	9.61	1.37	1.01	6.5
45-75	9.1	7.9	13.7	0.19	1.26	0.18	2	309	16	38.3	4.0	0.94	7	2.44	0.67	19.8	9.29	8.03	1.63	0.83	8.2
75-100	8.9	7.7	3.3	0.37	2.88	0.23	2	467	141	128	4.7	1.17	10	1.90	0.85	17.1	10.3	2.44	3.18	1.20	18.6
100-160	8.9	7.9	0.7	0.37	2.35	0.16	2	628	230	75.8	6.6	2.46	39	169	0.94	25.4	7.09	11.2	5.45	1.66	21.5

**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.