

## SAND OVER DISPERSIVE CLAY

**General Description:** *Sand over coarsely structured dispersive brown or grey clay, calcareous with depth*

**Landform:** Very gently undulating dunefield.

**Substrate:** Clay, possibly deposited on a lunette adjacent to an old lagoonal corridor.

**Vegetation:**



**Type Site:** Site No.: SE023

1:50,000 sheet:	6923-1 (Conmurra)	Hundred:	Joyce
Annual rainfall:	650 mm	Sampling date:	11/05/94
Landform:	Midslope of low rise, 1% slope.		
Surface:	Soft with no stones		

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Black soft single grain loamy coarse sand. Abrupt to:
15-37	Light yellowish brown loose single grain coarse sand. Sharp to:
37-55	Dark greyish brown and greyish brown mottled very hard coarse sandy light medium clay with very coarse columnar structure. Gradual to:
55-100	Light olive grey and yellowish brown mottled slightly calcareous coarse sandy medium clay with weak coarse prismatic structure and 2-10% carbonate nodules (20-60 mm). Gradual to:
100-160	Light olive grey and yellowish brown mottled firm massive sandy medium clay with minor ironstone.
160-165	Greenish grey and brown firm massive sandy medium clay.



**Classification:** Calcic, Mottled-Hypernatric, Grey Sodosol; thick, non-gravelly, sandy / clayey, deep

## Summary of Properties

**Drainage** Imperfectly drained. The coarsely structured dispersive clay subsoil perches water for several weeks at a time following heavy or prolonged rainfall.

**Fertility** Inherent fertility is low as indicated by the exchangeable cation data. Nutrient retention capacity of the topsoil is very low and largely attributable to organic matter. Phosphorus, potassium and copper are deficient. Calcium and magnesium are deficient in the topsoil, but levels are adequate in the subsoil.

**pH** Acidic at the surface, alkaline at depth.

**Rooting depth** 165 cm in pit, but most roots are in the top 15 cm.

### Barriers to root growth

**Physical:** The coarsely structured dispersive clayey subsoil significantly restricts root growth which is confined to the surfaces of the aggregates.

**Chemical:** High sodicity from 37 cm, moderate salinity from 55 cm, low nutrient retention capacity (almost nil in the 15-37 cm layer) and low trace element concentrations in all subsurface layers limit root growth.

**Water holding capacity** Approximately 60 mm in the root zone.

**Seedling emergence:** Fair due to water repellent surface.

**Workability:** Soft surface is easily worked.

### Erosion Potential

**Water:** Low.

**Wind:** Moderately low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -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	
Paddock	5.2	4.6	0	0.05	0.44	1.6	7	56	-	0.2	0.2	61	3.5	1.4	3.3	2.1	0.6	0.19	0.18	na
0-15	5.1	4.5	0	0.04	0.41	1.4	5	41	-	0.2	0.2	61	1.7	1.6	3.0	1.9	0.5	0.18	0.14	na
15-37	5.8	5.6	0	0.01	0.12	<0.1	<4	13	-	0.1	0.1	7	0.1	0.2	0.4	0.9	0.2	0.13	0.05	na
37-55	9.3	8.5	0.1	0.46	2.24	0.1	<4	281	-	6.0	0.2	6	0.1	0.2	8.3	2.0	3.4	3.28	0.37	39.5
55-95	9.4	8.5	5.1	1.04	5.30	0.1	<4	178	-	10.0	0.1	8	0.0	0.2	14.9	2.6	5.7	8.16	0.61	54.8
95-100	9.2	8.5	1.3	1.09	7.39	0.1	<4	147	-	7.2	<0.1	5	<0.1	0.2	11.6	2.0	4.3	7.55	0.37	65.1
100-140	8.9	8.2	0.2	0.74	6.22	0.1	<4	108	-	3.6	0.1	5	<0.1	0.1	10.1	2.1	3.3	5.18	0.24	51.3
140-160	8.4	7.7	<0.1	0.68	3.68	<0.1	<4	135	-	3.2	0.1	6	<0.1	0.2	13.6	2.3	4.8	6.60	0.38	48.5
160-165	8.7	8.0	<0.1	0.63	4.03	<0.1	<4	162	-	1.7	0.2	4	<0.1	0.1	10.1	2.3	3.9	4.13	0.39	40.9

**Note:** Paddock sample bulked from 20 cores (0-10 cm) taken around 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.