

## IRONSTONE SOIL ON LATERITIC CLAY (Stevens soil)

**General Description:** *Ironstone gravelly sandy loam over a brownish ironstone gravelly sandy clay grading to deeply weathered clayey sediments with nodules of laterite*

**Landform:** Undulating low hills.

**Substrate:** Deeply weathered Tertiary clay with abundant hard ferruginous segregations.

**Vegetation:** Euc. cladocalyx woodland with mallee / broombush understorey



**Type Site:** Site No.: EL139

50,000 sheet:	6028-1 (Lincoln)	Hundred:	Wanilla
Annual rainfall:	500 mm	Sampling date:	1982
Landform:	Upper slope in a landscape of undulating low hills, 3% slope		
Surface:	Firm with 2-10% ironstone fragments		

**Soil Description:**

Depth (cm)	Description
0-7	Very dark greyish brown sandy loam with granular structure and 2-10% ironstone fragments (2-10 mm). Abrupt to:
7-15	Dark yellowish brown sandy loam with granular structure and 25-50% ironstone nodules and concretions (2-10 mm). Gradual to:
15-75	Dark yellowish brown massive sandy clay loam with more than 75% lateritic nodules (10-50 mm). Diffuse to:
75-140	Yellowish brown medium clay with granular structure and more than 75% lateritic nodules (10-50 mm). Diffuse to:
140-220	Brownish yellow medium clay with subangular blocky structure and 25-50% lateritic fragments (10-50 mm), weakly indurated.



**Classification:** Ferric, Eutrophic, Brown Kandosol; thin, slightly gravelly, loamy/clayey, deep

## Summary of Properties

<b>Drainage</b>	Imperfectly to moderately well drained. The soil may remain wet for a week to several weeks following heavy or prolonged rainfall.
<b>Fertility</b>	Inherent fertility is low, as indicated by the exchangeable cation data. Nutrient retention capacity is low due to low clay content in the topsoil, and high ironstone content reduces phosphate availability. Phosphate levels are only significant in the upper 7 cm of soil. Manganese availability in the clayey subsoil is low. Organic carbon levels are satisfactory.
<b>pH</b>	Slightly acidic throughout.
<b>Rooting depth</b>	Not recorded. Estimate 35 cm in pit.
<b>Barriers to root growth</b>	
<b>Physical:</b>	The heavier clay from 75 cm restricts root growth.
<b>Chemical:</b>	There are no apparent chemical barriers apart from low trace element availability in the subsoil.
<b>Water holding capacity</b>	Approximately 35 mm in the root zone.
<b>Seedling emergence:</b>	Satisfactory.
<b>Workability:</b>	Satisfactory although surface ironstone causes significant abrasion of implements.
<b>Erosion Potential</b>	
<b>Water:</b>	Moderately low.
<b>Wind:</b>	Low.

## Laboratory Data

Depth cm	Sand %	Silt %	Clay %	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	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-7	87	9	4	5.8	-	0	0.08	0.88	2.36	32	2.44	59	20.0	4.44	14.0	5.4	0.84	0.08	0.41	0.6
7-15	86	8	6	6.2	-	0	0.03	0.35	0.83	2	0.62	25	0.9	0.34	7.0	2.1	1.0	0.03	0.12	0.4
15-75	75	4	20	6.2	-	0	0.04	0.24	0.75	2	1.30	19	0.3	0.98	10.0	2.3	2.3	0.14	0.38	1.4
75-140	55	5	40	6.4	-	0	0.08	0.44	-	-	-	-	-	-	19.0	4.0	5.7	0.57	0.39	3.0
140-220	37	7	56	6.1	-	0	0.09	0.52	-	-	-	-	-	-	8.7	1.4	2.7	0.17	0.07	2.0

**Note:** 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.