

**SAND OVER BROWN OR YELLOW ACIDIC CLAY**

**General Description:** *Medium to thick sand with a bleached subsurface layer, often including a band of ironstone gravel, overlying a yellow to brown acidic sandy light clay grading to weak sandstone*

**Landform:** Rolling low hills

**Substrate:** Massive weakly cemented sandstone of Permian age glacial valleys.

**Vegetation:**

<b>Type Site:</b>	Site No.:	CH177A	1:50,000 mapsheet:	6626-4 (Encounter)
	Hundred:	Encounter Bay	Easting:	276519
	Section:		Northing:	6066271
	Sampling date:	15/01/13	Annual rainfall:	690 mm average

Upper slope of low hill, 8% slope. Soft surface with 2-10% ironstone and sandstone gravel. Site has been delved, limed and spaded.

**Soil Description:**

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark greyish brown loose single grain loamy sand. Clear to:
10-20	Brown loose single grain loamy sand (normally bleached, but delving and spading has mixed upper two layers). Abrupt to:
20-50	Brownish yellow hard massive sandy light medium clay with dark red inclusions of highly weathered ironstone nodules. Clear to:
50-80	Brownish yellow firm massive clayey sand with abundant dark red inclusions of highly weathered ironstone. Gradual to:
80-110	Brownish yellow hard massive sandy light clay with dark red inclusions of highly weathered ironstone nodules.

**Classification:** Haplic, Eutrophic, Yellow Chromosol; medium, slightly gravelly, sandy / clayey, deep



## Summary of Properties

- Drainage:** Well drained. The soil is unlikely to remain saturated for more than a day or so following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is moderately low due to the low clay content of the surface soil, and low nutrient retention capacity of the clayey subsoil (CEC is less than 10cmol(+)/kg). At the sampling site, data indicate deficiencies of manganese, and low subsoil levels of copper and zinc. Surface PBI is also low. Delving and spading however, have improved the fertility status of the previously bleached (and highly nutrient deficient) subsurface layer (10-20 cm).
- pH:** Acidic throughout.
- Rooting depth:** Most root growth is in the sandy surface layers and upper part of clayey subsoil (i.e. to 50 cm).
- Barriers to root growth:**
- Physical:** The massive clayey sand deep subsoil presents a moderate barrier to roots.
  - Chemical:** The only chemical barrier is low nutrient availability.
- Waterholding capacity:** Approximately 60 mm in the potential rootzone.
- Seedling emergence:** Fair to satisfactory, depending on severity of water repellence.
- Workability:** Loose sandy surface is easily worked.
- Erosion Potential:**
- Water:** Moderate, due to loose topsoil, relatively shallow depth to clay, and ground slope.
  - Wind:** Moderately low to moderate due to loose sandy surface.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	Ext. Al mg/kg	EC 1:5 dS/m	Org.C %	NO <sub>3</sub> mg/kg	Avail. P mg/kg	PBI	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	
0-10	5.9	5.0	1.36	0.136	2.08	24	28	19	179	10.9	0.4	0.66	139	1.46	0.87	4	2.28	0.7	0.42	0.21	6
10-20	6.0	5.0	1.42	0.099	2.34	16	23	17	112	9.0	0.3	0.59	153	1.26	1.05	3	2.23	0.6	0.29	0.17	5
20-50	5.6	4.6	0.91	0.038	0.23	2	< 2	159	95	20.1	0.5	0.08	22	0.13	0.07	8	2.75	5.0	0.24	0.17	2
50-80	6.0	5.0	0.29	0.032	0.12	1	< 2	88	81	18.6	0.4	0.06	12	0.04	0.07	6	1.67	4.3	0.21	0.17	3
80-110	6.1	5.1	< 0.20	0.031	0.12	1	< 2	59	85	15.1	0.5	0.26	13	0.18	0.19	6	1.31	3.9	0.21	0.22	4

- Note:** Trace elements in 0-10 cm layer (shaded) analysed using EDTA.  
CEC (exchangeable cation 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.

**Further information:** [DEWNR Soil and Land Program](#)

