

# BLEACHED IRONSTONE GRAVELLY SAND OVER CLAY

**General Description:** *Thick sand with a bleached subsurface layer and a band of ironstone gravel, overlying a yellow to brown light clay grading to weak sandstone*

**Landform:** Undulating rises and low hills

**Substrate:** Massive weakly cemented sandstone of Tertiary? Age.

**Vegetation:**



**Type Site:** Site No.: CH152  
 1:50,000 sheet: 6626-4 (Encounter)      Hundred: Waitpinga  
 Annual rainfall: 575 mm Easting:      Sampling date: 11/10/06  
 Landform: Crest of low hill, 3% slope.  
 Surface: Loose surface with 2-10% ironstone gravel.

**Soil Description:**

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark greyish brown loose single grain light loamy sand with 2-10% ironstone gravel (2-20 mm). Clear to:
10-23	Light grey loose single grain light loamy sand with 2-10% ironstone gravel(2-20 mm). Clear to:
23-42	Strong brown soft single grain loamy sand with 20-50% sandstone fragments (6-20 mm) and 20-50% ironstone gravel (2-60 mm). Abrupt to:
42-50	Yellowish brown and yellowish red firm fine sandy light clay with moderate subangular blocky structure. Abrupt to:
50-80	Brownish yellow, red and light yellowish brown firm massive light sandy clay loam (weak sandstone).



**Classification:** Bleached-Ferric, Eutrophic, Brown Chromosol; thick, slightly gravelly, sandy / clayey, moderate

## 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 low due to the low clay content of the surface soil. This is compounded by the presence of ironstone, which reduces the availability of phosphorus. At the sampling site, data indicates deficiencies of phosphorus, potassium, copper, manganese and zinc.
- pH:** Neutral at the surface, slightly alkaline with depth.
- Rooting depth:** 50 cm in sampling pit, with a mat of roots running along the surface of the substrate sandstone at 50 cm.
- Barriers to root growth:**
- Physical:** The strength of the underlying sandstone presents a significant barrier to roots, at least of annual plants.
  - Chemical:** The only chemical barrier is low nutrient availability.
- Water holding capacity:** Approximately 40 mm in the rootzone.
- Seedling emergence:** Fair to satisfactory, depending on severity of water repellence.
- Workability:** Loose sandy surface is easily worked.

## Erosion Potential

- Water:** Low, due to topographic position. Moderate on slopes.
- Wind:** Moderate to moderately high due to loose sandy surface and exposed position.

## 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	SO <sub>4</sub> -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	7.4	6.6	0	0.02	0.83	1.74	14	94	13.3	0.4	0.16	80	7.29	1.03	5.6	4.22	1.01	0.19	0.21	3.4
10-23	7.5	6.9	0	0.06	0.50	0.52	3	32	3.9	0.3	0.14	66	1.74	0.13	3.8	3.16	0.43	0.14	0.07	3.7
23-42	7.6	7.2	0	0.11	0.68	0.38	4	54	5.6	0.3	0.25	156	1.80	0.13	5.8	4.55	0.90	0.18	0.17	3.1
42-50	7.5	6.9	0	0.16	0.93	0.52	2	119	22.4	0.7	0.14	41	2.67	0.13	14.1	8.48	4.98	0.34	0.33	2.4
50-80	7.6	7.3	0	0.32	1.55	0.22	2	82	106	0.6	0.18	9	1.84	0.17	14.1	8.97	4.64	0.28	0.23	2.0

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

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.