

SHALLOW BLEACHED SAND OVER FERRICRETE

General Description: *Shallow bleached sand with over ferricrete in the form of cemented ironstone gravel with solution cavities.*

Subgroup soil: J3.

Landform: Plateau (summit) surface.

Substrate: Below ferricrete: mottled clay (deeply weathered material).

Vegetation: Low stringybark scrub with bulloak, etc.

Type Site:	Site No.:	CK024	1:50,000 mapsheet:	6326-4 (Stokes Bay)
	Hundred:	Duncan	Easting:	695 760
	Section:	17	Northing:	6049 580
	Sampling date:	17/12/04	Annual rainfall:	670 mm average

Gently undulating plain (plateau surface); loose sandy surface with minor ferricrete fragments (6-20 cm).

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-8	Dark brown strongly water repellent loose loamy sand with minor ironstone gravel (2-20 mm). Clear to:
8-20	Bleached light grey brown water repellent loamy sand. Abrupt to:
20-80	Ferricrete (cemented ironstone gravel) with some solution cavities filled with ironstone gravel (2-20 mm) and bleached light grey brown water repellent loamy sand. (Cavities to at least 42 cm). Abrupt to:
80-110	Yellow brown sandy loam with >50% ironstone gravel (2-20 mm). Abrupt to:
110-160	Yellow brown medium clay with red and brownish yellow mottles. Weak subangular blocky primary structure (2-10 mm) breaks to weak subangular blocky secondary structure (<2 mm). Clear to:
160-190	Strong brown medium clay with red and light olive brown mottles. Moderate subangular primary structure (10-20 mm) breaks to moderate lenticular or subangular blocky secondary structure (<2-10 mm).

Note: The bottom three layers were described at a site 500 m to the west (E 695 218 N 6049 609).

Classification: Basic, Petroferric, Leptic Tenosol; thin, non-gravelly, sandy/-, shallow.



Summary of Properties

Drainage: Imperfect drainage. It is likely that water would 'perch' on ferricrete layer. Bleached layer indicates considerable lateral movement of water through soil over the ferricrete layer.

Fertility: Inherent fertility is very low. The sum of cations data indicate the very low nutrient retention capacity of this bleach sandy and strongly acidic soil. P is extremely low in this unfertilised site situated among native scrub. K, S and the trace elements B (and probably Zn) have low levels. Organic matter levels are very good, however, this is an indication of low microbial activity and an undisturbed site. Most plant roots would not reach the somewhat higher fertility levels of the underlying clay.

pH: Sandy soil is strongly acidic; lower layers below ferricrete are acidic.

Rooting depth: Viewed to 42 cm in pit; most are restricted at 20 cm by the ferricrete layer.

Barriers to root growth:

Physical: Ferricrete at 20 cm restricts root growth.

Chemical: General low fertility. Raised aluminium levels in the surface soil would affect the root growth of many plants.

Waterholding capacity: Very low.

Total available: approx 21 mm

Seedling emergence: Good. Although water repellence would result in uneven wetting and possibly patchy germination and seedling emergence.

Workability: Good.

Erosion Potential:

Water: Low.

Wind: Moderate.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ mg/kg	Boron mg/kg	React. Iron mg/kg	Al CaCl ₂ 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	Al	
0-8	4.8	3.6	0	0.037	0.24	3.12	<1	35	4.8	0.3	241	4.1	0.45	60.1	3.59	0.52	2.10	1.24	0.56	0.09	0.09	0.12	na
8-20	5.5	4.0	0	0.012	0.12	0.47	<1	21	1.7	0.2	79	2.2	0.12	18.5	0.43	0.32	0.45	0.17	0.13	0.03	0.05	0.07	na
20-80	5.2	4.0	0	0.017	0.14	0.38	<1	18	2.1	0.2	205	2.7	0.73	36.5	3.38	0.19	0.41	0.13	0.13	0.03	0.04	0.08	na
80-110	6.3	5.1	0	0.023	0.18	0.40	<1	135	5.5	0.4	1022	0.3	0.64	29.5	3.99	0.51	2.41	0.84	1.02	0.17	0.35	0.03	na
110-160	6.2	5.3	0	0.037	0.17	0.33	<1	215	29.5	0.7	456	0.1	0.37	15.9	4.48	0.26	6.01	1.84	3.29	0.34	0.51	0.03	5.66
160-190	6.1	5.5	0	0.046	0.16	0.21	<1	199	95.6	0.8	391	0.0	0.41	10.9	5.10	0.32	6.32	1.77	3.79	0.30	0.46	0.0	4.75

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.

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

