

## SHALLOW CALCAREOUS SANDY LOAM

**General Description:** *Highly calcareous sandy to loamy surface soil, shallow over rubbly or sheet calcrete, grading to sandstone*

**Landform:** Undulating to rolling low hills, with common outcrops of silcrete and calcrete, and associated surface stones.

**Substrate:** Calcreted sandstones of Tertiary age.

**Vegetation:**



<b>Type Site:</b>	Site No.:	CU002	1:50,000 mapsheet:	6531-2 (Gladstone)
	Hundred:	Narridy	Easting:	254750
	Section:	73	Northing:	6299900
	Sampling date	21/02/1992	Annual rainfall:	480 mm average

Upper slope / crest of undulating low hills, slope 2%. Firm surface with 20% sandstone, calcrete and quartz stones (up to 6 cm) on surface.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-13	Dark brown moderately granular very highly calcareous light sandy clay loam with less than 2% fine calcrete nodules. Abrupt to:
13-17	Brown massive very highly calcareous light sandy clay loam with 20-50% fine calcrete nodules. Abrupt to:
17-33	Very pale brown very highly calcareous light clay loam with more than 50% fine calcrete nodules (Class III C carbonate layer). Abrupt to:
33-40	Broken calcrete pan. Clear to:
40-120	Weathering sandstone with abundant fine lime leached in from above.



**Classification:** Hypervescent, Petrocalcic, Lithocalcic Calcarosol; medium, gravelly, loamy / clay loamy, shallow



**Summary of Properties**

- Drainage:** Rapid. Soil never wet for more than a few hours.
- Fertility:** Fair. Low clay content limits nutrient retention capacity, and high lime content reduces availability of some nutrients. Maintenance of organic carbon levels above 1% is essential.
- pH:** Alkaline in surface; strongly alkaline with depth.
- Rooting depth:** 33 cm at type site. Limited by calcrete pan and shallow rock.
- Barriers to root growth:**
- Physical:** Hard rock at shallow depth restricts depth to which roots can penetrate.
  - Chemical:** High alkalinity.
- Waterholding capacity:** 50 mm in rootzone (low). Varies depending on amount of rubble and depth to rock.
- Workability:** Good, except where heavy stone is within cultivation depth, or surface stone cover exceeds 20%. Soil structure is not a problem due to high surface carbonate (CaCO<sub>3</sub>) levels.
- Seedling establishment:** Good, provided that surface organic matter levels are maintained.
- Erosion potential:**
- Water:** Low, due to gentle slope and high soil infiltration rates.
  - Wind:** Low, unless heavily overgrazed.

**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> 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	8.7	8.0	17.6	0.14	-	1.00	26	270	-	-	0.58	1.5	4.0	0.27	-	-	-	-	-	-
0-13	8.5	7.8	8.7	0.16	1.0	1.31	41	410	-	-	0.59	1.6	7.5	0.44	16.5	11.9	1.36	0.09	1.18	0.5
13-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17-33	9.0	8.2	33.5	0.10	0.3	0.56	4	35	-	1.0	0.62	0.6	0.5	0.07	6.7	6.30	1.50	0.10	0.15	1.5
33-40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-120	9.1	8.4	29.9	0.12	0.4	0.23	2	30	-	0.9	0.21	0.2	0.2	0.01	7.3	4.45	3.85	0.23	0.11	3.2

**Note:** Paddock sample bulked from 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.

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

