CALCAREOUS RUBBLY SANDY CLAY LOAM

General Description: *Calcareous sandy loam to sandy clay loam, becoming more clayey with depth, over a very highly calcareous light clay with abundant carbonate rubble, decreasing with depth*

Landform: Gently undulating rises.

Substrate: Medium textured highly calcareous windblown deposits, underlain by old lake bed clay.

Vegetation:

Type Site:

Site No.:	CL060	1:50,000 mapsheet:	6629-3 (Hamley Bridge)
Hundred:	Grace	Easting:	280100
Section:	328	Northing:	6193540
Sampling date:	2013	Annual rainfall:	415 mm average

Upper slope of gentle rise, with slope of 2%. Firm surface with occasional calcrete stones to 6 cm.

Soil Description:

Depth (cm)	*Description*
0-10	Dark reddish brown highly calcareous light fine sandy clay loam with weak granular structure and 2-10% calcrete stones to 6 cm. Clear to:
10-40	Reddish brown very highly calcareous clay loam with weak subangular blocky structure, and 2-10% soft calcareous segregations. Gradual to:
40-80	Reddish yellow massive very highly calcareous light clay with 20-50% calcareous nodules to 2 cm, and more than 50% soft calcareous segregations. Diffuse to:
80-110	Reddish yellow massive very highly calcareous light medium clay with more than 50% soft calcareous segregations.

Classification: Ceteric, Regolithic, Supracalcic Calcarosol; medium, slightly gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Well drained. No part of the profile is likely to remain wet for more than a day or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately high, as indicated by the exchangeable cation data (CEC exceeding 15 cmol(+)/kg means high nutrient retention capacity). There are no deficiencies at this site according to the laboratory data. Phosphorus, potassium and trace element levels are particularly high. Carbonate-induced fixation of phosphorus and trace elements may be expected in those parts of the paddock with high surface carbonate (more than 8%) – difference between paddock (1%) and pit (8%) samples suggests that this value is variable.

pH: Alkaline throughout, but not strongly alkaline with depth.

Rooting depth: Most root growth is in the upper 40 cm, but some roots persist to 80 cm.

Barriers to root growth:

Physical: There are no apparent physical barriers.

Chemical: There are no apparent chemical barriers, although carbonate-induced fixation of nutrients is the likely cause of root growth reduction with depth.

Waterholding capacity: Approximately 90 mm in potential rootzone.

Seedling emergence: Satisfactory – calcareous surface soils usually maintain friable consistence.

Workability: Calcareous surface soils can usually be worked over a range of moisture conditions.

Erosion Potential

Water: Slight due to slope, but surface soil is relatively stable.

Wind: Moderately low – calcareous soils can become powdery and susceptible to wind erosion if over-grazed or worked too dry.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_3 %	EC 1:5 dS/m	ECe dS/m	Org.C %	NO_3 mg/kg	Avail. P mg/kg	PBI	Avail. K mg/kg	SO_4-S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	8.3	7.5	1.2	0.121	0.49	1.8	8	67	53	552	5.1	0.9	0.67	6	6.3	2.5	14.8	12.0	1.28	0.06	1.4	0.4
0-10	8.6	7.8	8.0	0.152	0.80	1.36	18	41	83	376	5.6	0.7	0.73	5	3.4	2.8	17.3	14.3	1.26	0.10	1	1.4
10-40	8.7	7.9	22	0.124	0.44	0.68	6	14	-	199	7.1	1.0	0.78	4	1.5	2.68	18.0	15.6	1.69	0.20	0.5	1.1
40-80	8.9	7.9	26	0.135	0.54	0.35	9	3	-	99	4.0	1.0	0.62	4	0.62	1.0	17.3	14.2	2.57	0.24	0.3	1.4
80-110	9.0	8.0	23	0.133	0.54	0.19	10	5	-	210	6.8	1.1	0.75	4	0.57	2.9	16.7	11.2	4.40	0.52	0.5	3.1

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.

Further information: DEWNR Soil and Land Program