LOAM OVER POORLY STRUCTURED RED CLAY

General Description: *Hard setting silty loam to clay loam abruptly overlying a coarsely structured dispersive red clay, calcareous with depth.*

Landform: Flat plains to gently inclined fans.

Substrate: Fine grained alluvium mantled by fine carbonate.

Vegetation:

Type Site:

Site No.:	CL910	1:50,000 mapsheet:	6629-3 (Hamley Bridge)
Hundred:	Grace	Easting:	275100
Section:	223	Northing:	6191000
Sampling date:	08/03/91	Annual rainfall:	400 mm average

Very gently inclined plain, 0.5% slope. Hard setting surface, no stones.

Soil Description:

Depth (cm)	*Description*
0-6	Brown firm silty loam with weak granular structure. Abrupt to:
6-28	Reddish brown hard medium clay with coarse prismatic structure. Clear to:
28-114	Yellowish red firm moderately calcareous medium clay with strong medium subangular blocky structure and 2-10% fine carbonate segregations. Gradual to:
114-130	Yellowish red hard slightly calcareous medium clay with strong coarse prismatic structure and minor fine carbonate segregations.

Classification: Calcic, Red Sodosol; thin, non-gravelly, silty / clayey, deep

Summary of Properties

Drainage: Well to moderately well drained. Water can perch on the dispersive clayey subsoil for a few days to a week following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately high. Nutrient retention capacity is affected by surface clay (about 20%) and organic matter contents, both of which are satisfactory. Nutrient fixation in the surface soil is minimal due to neutral pH, but in the calcareous subsoil, zinc and manganese are effectively unavailable.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: 68 cm in pit, but few roots below 28 cm.

Barriers to root growth:

Physical: The coarsely structured clayey subsoil restricts root growth to some extent, but does not prevent growth.

Chemical: The combination of moderately high pH, boron concentration, salt and probably sodicity impedes deep root growth.

Waterholding capacity: Approximately 55 mm in the rootzone.

Seedling emergence: Fair. The hard setting and sealing surface prevents a percentage of seedlings from breaking through. This can be overcome by gypsum applications and building up organic matter.

Workability: The hard silty loam surface tends to shatter if worked too dry, and puddle if worked too wet.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4 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	
0-6	7.3	6.3	1	0.12	-	1.31	68	640	-	-	2.2	18	26.0	0.6	-	-	-	-	-	-
6-28	8.8	7.6	3	0.35	-	0.70	7	430	-	8	2.3	8.2	7.1	0.1	-	-	-	-	-	-
28-114	9.1	8.1	10	1.10	-	0.20	6	340	-	13	1.2	6.1	1.9	0.1	-	-	-	-	-	-
114-130	8.6	8.0	6	2.26	-	0.17	6	300	-	-	0.9	4.6	1.2	0.0	-	-	-	-	-	-

Further information: DEWNR Soil and Land Program