

SANDY CLAY LOAM OVER GRAVELLY RED CLAY

General Description: *Gravelly sandy loam to sandy clay loam, overlying a very stony, reddish brown well structured clay subsoil, calcareous with depth*

Landform: Gently inclined slopes below rocky hills

Substrate: Very stony (mostly quartzite) medium to fine grained local outwash sediments

Vegetation:



Type Site:	Site No.:	CU019	1:50,000 mapsheet:	6531-4 (Pirie)
	Hundred:	Napperby	Easting:	234550
	Section:	141	Northing:	6319950
	Sampling date:	16/12/1992	Annual rainfall:	420 mm average

Upper slope of a gently inclined alluvial fan, 6% slope. Hard setting surface with approximately 20% quartzite stones (60 mm average diameter).

Soil Description:

Depth (cm)	Description
0-10	Dark reddish brown massive sandy clay loam with 10% quartzite stones (20-60 mm). Abrupt to:
10-35	Dark reddish brown medium heavy clay with strong polyhedral structure and 65% quartzite stones (20-60 mm). Gradual to:
35-65	Red medium heavy clay with strong polyhedral structure and 65% quartzite stones (20-60 mm). Clear to:
65-90	Red medium clay with strong polyhedral structure, 75% quartzite stones (20-60 mm), and 20% soft calcareous segregations (Class I carbonate). Gradual to:
90-140	Reddish brown, soft, massive, highly calcareous light sandy clay loam, with 25% quartzite stones (20-60 mm), and 10% soft carbonate segregations.



Classification: Haplic, Calcic, Red Chromosol; medium, gravelly, clay loamy / clayey, moderate



Summary of Properties

- Drainage:** Well drained. Soil is unlikely to remain wet for more than a few days.
- Fertility:** Natural fertility is high, as indicated by the high CEC value in the clay subsoil. Low organic matter content however reduces the capacity of the surface soil to retain nutrients.
- pH:** Slightly acidic at surface, alkaline with depth.
- Rooting depth:** 140 cm in pit, but few roots below 90 cm.
- Barriers to root growth:**
- Physical:** Heavy stone layers may impede root penetration.
 - Chemical:** Class I carbonate layer. Salt and boron are not significant.
- Waterholding capacity:** 60 mm. High stone content and poor root distribution at depth are responsible for the moderately low value.
- Seedling emergence:** Fair due to hard setting, sealing surface.
- Workability:** Fair to poor due to narrow moisture range for effective working, and abrasive effects of extensive surface quartzite.
- Erosion Potential:**
- Water:** Moderate (6% slope).
 - Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	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	
Paddock	6.6	6.0	1	0.05	0.29	0.5	47	330	-	1.4	-	-	-	-	8.4	6.90	1.32	0.34	0.79	4.0
0-10	6.9	6.6	0	0.09	0.36	0.8	33	470	-	1.4	-	-	-	-	8.9	7.69	1.31	0.10	1.09	1.1
10-35	6.4	5.8	1	0.04	0.23	0.4	7	250	-	2.7	-	-	-	-	17.6	12.4	5.01	0.23	0.77	1.3
35-65	6.6	6.1	1	0.07	0.29	0.3	5	200	-	3.9	-	-	-	-	24.8	18.1	8.25	0.36	0.85	1.5
65-90	8.3	7.8	8	0.17	0.56	0.1	<2	270	-	2.9	-	-	-	-	21.1	15.7	6.30	0.32	0.85	1.5
90-140	8.7	8.1	10	0.18	0.59	<0.1	<2	380	-	2.5	-	-	-	-	17.7	9.06	8.77	0.86	1.09	4.9

- 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](#)

